WAR DEPARTMENT . . . OFFICE OF THE CHIEF OF STAFF.
SECOND (MILITARY INFORMATION) DIVISION.
GENERAL STAFF.

No. 5.

BULLETIN

OF

MILITARY NOTES.

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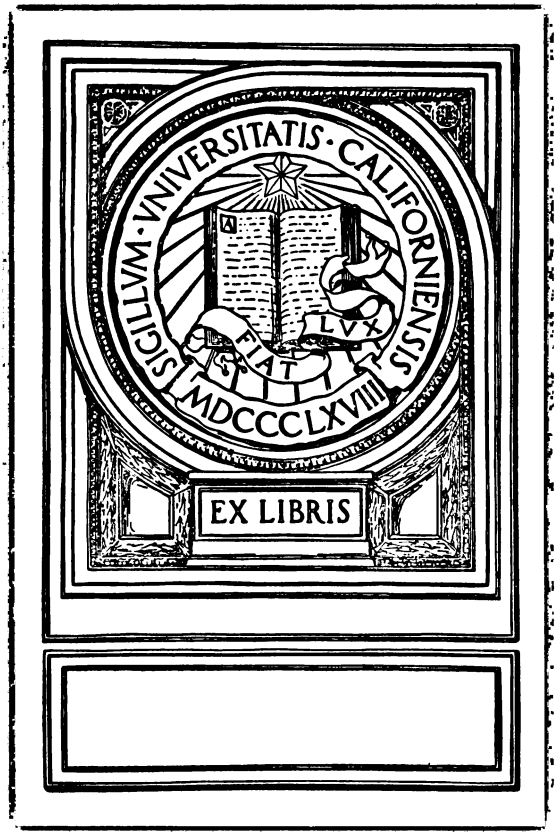

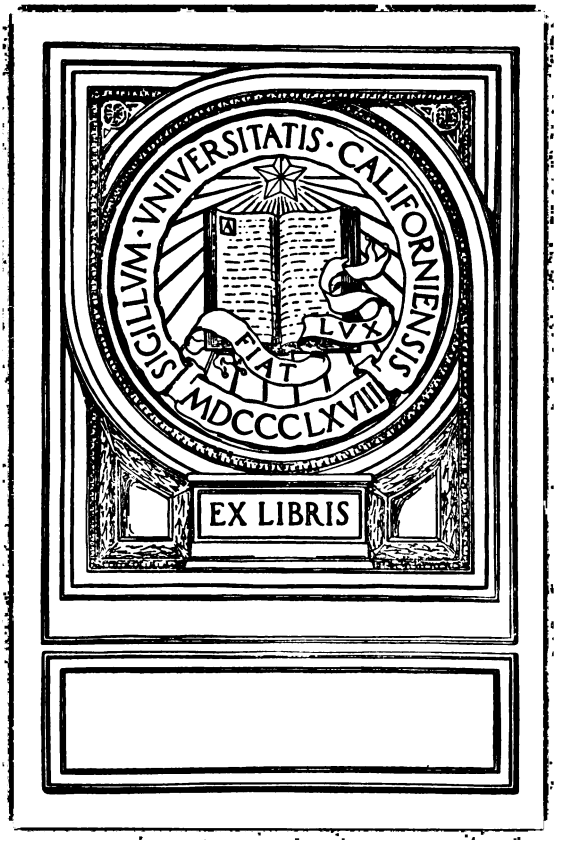

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Office of the Chief of Staff.

ARGENTINA.

ARMY EFFECTIVE FOR THE CURRENT FINANCIAL YEAR.

The following are the latest official figures:

1. CORPS OF OFFICERS.

Four lieutenant-generals, 6 divisional and 12 brigadier generals, 84 colonels, 185 lieutenant-colonels, 190 majors, 245 captains, 260 first lieutenants, 280 lieutenants, and 300 sub-lieutenants; altogether, 1,566 officers.

2. TROOPS.

(*a*) *Infantry.*—Two rifle battalions of 4 companies each, with 28 officers, 82 noncommissioned officers, 32 volunteers, 20 fife and drums, 200 two years' men, 120 six months' service, 2 gunsmiths, and 2 shoemakers; total, 486.

Two battalions of mounted infantry of 4 companies each, with 28 officers, 82 noncommissioned officers, 32 volunteers, 12 musicians, 200 men of two years' and 120 with six months' service, with two mechanics, 2 saddlers, 2 shoemakers; total, 480.

Fourteen line battalions, with 194 officers, 574 noncommissioned officers, 224 volunteers, 140 musicians, 1,400 men with two years' and 840 with six months' service, 14 gunsmiths, 14 shoemakers; total, 3,400.

(*b*) *Cavalry.*—Two regiments of mounted gendarmes, each with 4 squadrons, with 36 officers, 90 noncommissioned officers, 520 volunteers, 20 trumpeters, 2 mechanics, 2 saddlers, 2 farriers, and 2 shoemakers; total, 674.

Eleven line regiments of 4 squadrons each, with 154 officers, 407 noncommissioned officers, 176 volunteers, 110 trumpeters, 880 men with two years' and 670 with six months' service, 11 mechanics, 11 saddlers, 11 farriers, and 11 shoemakers; total, 2,441.

(*c*) *Artillery.*—Five field artillery regiments of 4 batteries each, with 70 officers, 205 noncommissioned officers, 100 volunteers, 50 trumpeters, 700 gunners with two years' and 400 with six months' service. In addition, there are 5 mechanics, 10 saddlers, 10 farriers, 5 carpenters, and 5 shoemakers; total, 1,560.

Three mountain artillery regiments of 3 batteries each, with 33 officers, 93 noncommissioned officers, 45 volunteers, 30 trumpeters, 315 men with two years' and 180 with six months' service. In addition there are 3 mechanics, 6 locksmiths, 6 farriers, 3 carpenters, and 3 shoemakers; total, 717.

(*d*) *Engineers.*—Four battalions of 2 companies each, with 2 officers, 68 noncommissioned officers, 16 fife and drums, 40 volunteers, 280 men with two years' and 120 with six months' service, 2 mechanics, 1 electrician, 1 gunsmith, and 4 shoemakers; total, 553.

(*e*) *Transport.*—Two companies, with 5 officers, 17 noncommissioned officers, 20 volunteers, 4 trumpeters, 30 men with two years' and 40 with six months' service, 1 mechanic, 1 locksmith, 1 carpenter, and 1 shoemaker; total, 120.

(*f*) *Medical corps.*—At the head of this are 3 surgeon-generals with the rank of brigadier-general, 5 army surgeons with the rank of colonel, 6 divisional surgeons with the rank of lieutenant-colonel, 6 brigade surgeons with the rank of major, and 50 regimental surgeons with the rank of captain. There are, in addition, 3 dentists and 2 assistant dentists, 1 senior apothecary with major's rank, 2 first-class apothecaries with captain's rank, and 32 apothecaries ranking with sublieutenants, 1 veterinary inspector with the rank of captain, 1 first-class veterinary surgeon, 6 second-class and 16 veterinary surgeons, ranking with first lieutenants, lieutenants, and sublieutenants, respectively. In addition there are 8 first-class and 35 second-class hospital orderlies.

The spiritual welfare of the army is looked after by 1 vicar-general with the rank of colonel and 16 chaplains with the rank of captain. For gymnastics and fencing there are 2 professors, 40 instructors, and 27 assistants. The military music consists of 1 musical inspector, 18 bandmasters, 16 assistant bandmasters, 70 first-class, 100 second-class, 136

third-class musicians, and 427 pupils. Cyclists and keepers of archives are formed into one company consisting of 10 officers, 50 noncommissioned officers, and 25 volunteers. In addition to officers serving with the troops there are also 6 lieutenant-colonels and 30 majors on the active list, 10 lieutenant-colonels and 9 majors still in the service, and 3 lieutenant-colonels, 2 majors, 3 captains, 4 first lieutenants, 4 lieutenants, and 5 sublieutenants, who have retired from the service, and who are in various employments.—*Militar Wochenblatt.*

AUSTRIA-HUNGARY.

CHANGES IN ORGANIZATION IN THE AUSTRO-HUNGARIAN ARMY.

We have already reported upon the proposed increase of the Honved and landwehr artillery, for which the corresponding demands are to be presented in the budget for 1905, and we are to-day in position to name still further changes in organization which are to be carried out on the basis of this year's army budget for the Austro-Hungarian army.

The principle applied in the development of the Bosnian-Herzegovinian troops is slow development, gradual increase of capacity, with special reference to the internal, political, social, and financial conditions of the land. While the peace strength of the army and landwehr amounts to 0.74 of 1 per cent of the population, the war strength to 2.7 per cent, the percentage relation in the Bosnian-Herzegovinian troops is in peace 0.3 of 1 per cent and in war 1.1 per cent. The occupied territory therefore does not give quite one-half as many recruits as the Monarchy. The land has, therefore, to bring up its present peace strength of 4,500 men to 12,500 men; for the war strength 46,000 instead of 20,000. A whole infantry corps could therefore be formed. At present there exists four infantry regiments and a rifle battalion; there are to be newly added four rifle battalions. Their union in a Bosnian-Herzegovinian brigade is improbable.

A new telegraph battalion is to be formed; then, for every infantry troop division an infantry telegraph patrol, for every mountain brigade a mountain telegraph patrol. The instruction of these patrols (officers and men) is to be given in the telegraph schools at Tulln. Instead of the former light and normal bridge equipage there is to be a standard equipage. They hope in this way to save material. The wagon of materials is to be replaced by two pontoon wagons; thus more buoyant power with increased hauling capacity. The new field howitzers, too, have proven too heavy for the light equipage.

For the train, three new squadrons are planned, of which one is to be numbered 86, which was wanting heretofore,

and two are for the mountain brigades of the Zara military department.

Machine-rifle detachments of two sections are to be provided for 10 cavalry troop divisions, and detachments of two rifles for 12 mountain brigades. The experiences in the present German colonial war have determined this decision.

In the infantry they have decided to lessen by 1 kilogram the load of the soldier in favor of an increased ammunition supply. Here, too, the experiences of the East Asiatic war have furnished the reasons. Long, often many day, fights, lengthy marches, wide detours are constant phenomena; equally so the difficulty of munition replacement. They have therefore issued to the troops for trial a new model of cartridge pouch. The new pouch, manufactured by a Hamburg firm, has a specially prepared leather. In the matter of the knapsack, exhaustive studies have shown that it is superior in field utility to that of any other system.

In the technical troops the increase of the telegraph and telephone apparatus is a requirement of modern warfare. The difficulty of operative and tactical direction in long advance marches, battle and shelter spaces is here the determining factor. Hereto, also, belong the simplification of bridge material, the increase of floating supports, and the increase of the river patrol pontoons against mine attacks.

The planned increase in the artillery of the standing army claims special interest. Of the 47 divisions of the Austro-Hungarian army, only two infantry divisions (the first and eighteenth in the Fifteenth Corps) have mountain artillery. Accordingly, 45 infantry troop divisions must be provided with divisional artillery regiments. But since only 42 such artillery regiments are on hand, three field artillery regiments must be newly created. They intend to retain the corps artillery, but it is to be strengthened by field howitzer divisions, and since for each corps, except the fifteenth in Serajewo, a division is required, 14 howitzer divisions are to be formed. It is doubtful, however, whether they will form the corps artillery solely of field howitzer divisions or whether they will also introduce cannon batteries; further, it is undecided whether the batteries shall be formed of four or six guns. It is said that they will wait to see what the experiences of the Russo-Japanese war indicate. Also for

the question of caliber for the light field howitzers they will wait for the teachings of this war. From many sides comes the opinion that 10.5 cm. does not suffice for the caliber of these guns.

For the Tyrolean mountain battery division two narrow-gauge field batteries of four guns are to be newly formed. For the district of occupation one newly formed mountain battery is to be added to the existing 11 mountain batteries, and these are to be united into 3 mountain battery divisions of 4 batteries each. The object of this regulation lies in the decision to fit out the Fifteenth Corps as a fighting body with complete mountain equipment, and to make it suitable for use in the occupation district in case of any war. For the cavalry troop divisions there exist to-day 8 mounted battery divisions; two new ones are to be added. Austria-Hungary has at her disposal 5 cavalry troop divisions, 7 independent brigades, which in case of war are to be combined into from three to four divisions, and 4 Hungarian landwehr cavalry brigades, which constitute a division. In all, therefore, 10 divisions can be put into the field, for which two battery divisions are wanting. At the same time the former name, "mounted battery division," is to be changed to "artillery division."

A complete innovation results from the formation of siege howitzer divisions (15 cm. caliber). These are to be independent troop units with their own organizations (cadre), and it is intended to create in time one such howitzer division for every corps except the fifteenth.

In the foot artillery there have been up to now six regiments—three regiments of three battalions, three of two battalions, as well as three independent battalions. In consequence of the construction of fortifications in the occupation district in Tyrol and Galicia, two new battalions are to be added to the former 18 battalions.—*The International Review.*

* * * * *

LIGHT REFLECTORS FOR ARTILLERY IN THE AUSTRIAN ARMY.

In the Austrian army, also, as in the French army, a light-reflecting apparatus has been introduced which is to mark

the effect of artillery fire and to constitute a worthy help both to the umpires judging the changing phases of the fight and to the troops finding themselves in the hostile fire. The apparatus, which even in dull weather can be used up to ranges of 3,000 meters, consists of a light-generating apparatus and an angle reflecting system, and is revolvable in such a way that one can throw a cone of light of from 80 to 150 meters diameter toward the object held under artillery fire.—*The International Review.*

PROPOSED ARMY REFORM IN AUSTRIA-HUNGARY.

Count Tisza, the Hungarian premier, recently made in the Hungarian Parliament the two important announcements that the length of active service in the Austro-Hungarian army is to be reduced from three years to two years, and that the Landwehr is to be provided with artillery.

The premier stated that he was not yet prepared to enter into the details of the changes to be effected, and the date on which they are to begin was not given. The cavalry and the horse artillery are to be excepted in the general reduction of the term of active service. For these two arms the present length of active service of three years will be continued and for all other arms it will be reduced to two years. The strength of the infantry and cavalry is not to be changed, but that of the artillery is to be increased. Since, under the new system, there will be but two classes of enlisted men in active service, instead of the three classes under the existing three years' term of service, the annual contingent of recruits must be increased in order to maintain the present effective strength of the army. If simultaneously with the adoption of the two years' term of active service the artillery be increased, this change will demand a further augmentation of the annual contingent of recruits. The reason given for the increase of the artillery is that this arm is not capable, on account of its inferior guns and of its numerical weakness, of efficiently performing its task in war. Each Landwehr infantry division is to be provided with a regiment of field artillery. The premier stated that the contemplated changes have the approval of the Austro-Hungarian minister of war, which means that they are also approved by the highest authority of the Monarchy.

With reference to the introduction of the two years' term of active service, it is to be supposed that no change from the present system will be attempted before 1906, as the contingent of recruits proposed for 1905 is the same as that voted for 1904. No report of any value can be made of this reform until the publication of the details of the new law shall afford the necessary definite data.

However, with reference to the statement that each Landwehr infantry division is to be given its own regiment of divisional artillery, some conclusions may already be drawn. There are 8 Austrian and 7 Bulgarian Landwehr infantry divisions. These will therefore require together 15 regiments of divisional artillery. How these are to be supplied is not announced, but it is thought that most, if not all, of them will be transferred from the common army—that is, from the Imperial and Royal army. In time of peace this army has 31 infantry divisions organized, one of which, the First, is stationed in Bosnia and Herzegovina, where the only artillery employed consists of mountain batteries and fortress companies. That leaves 30 infantry divisions to be supplied each with a regiment of divisional artillery.

In the common army there are 14 corps artillery regiments, one for each army corps, except the Fifteenth, which is stationed in Bosnia and Herzegovina, and 42 divisional artillery regiments. Therefore, the 14 corps regiments could be left with their present commands, each of the 30 organized infantry divisions of the common army outside of Bosnia and Herzegovina could retain its own divisional regiment, and 12 divisional regiments would remain. These could be assigned to the 15 Landwehr infantry divisions, thus requiring the creation of but 3 new divisional regiments in order to provide each Landwehr division with its own regiment of field artillery. Of course, 3 of the 14 corps artillery regiments could be assigned to the Landwehr divisions. These 3 regiments, with the 12 divisional regiments above mentioned, would supply all of the required Landwehr artillery without the creation of any new regiments. That the 8 Austrian and the 7 Hungarian Landwehr infantry divisions will each be provided with its own regiment of field artillery may be accepted as a fact. Where

these regiments are to come from is, so far, largely a matter of conjecture for the public. Since the minister of war has been trying in vain for some time to obtain a sufficient increase in the strength of the army to enable him to man the new howitzer batteries, the material of which has been completed, the effort, if it should be made, to obtain enough men for 15 new regiments would appear to be decidedly hopeless.

During the maneuvers the Landwehr receives its divisional artillery from the common army. In case of war under the present organization it would obtain its artillery from the same source. In such cases the divisional artillery may come as a perfect stranger to the division to which it is assigned. The disadvantages of such a system are obvious. If any new regiments should be created, they would probably be given the present guns and other material of the artillery of the common army, as these guns are gradually replaced with the new quick-firing guns, until enough of the latter are completed for the armament of all the field artillery of both the common army and the Landwehr. In any case, it is the intention to have all the field artillery of the Monarchy ultimately armed with the same kind of modern gun.—*M. I. D., 1764–c.*

MILITARY PREPARATIONS IN AUSTRIA-HUNGARY.

As so much has been said on the subject of the recent military preparations in Austria-Hungary, it will be as well to give full details regarding the employment of the large sums which are to be spent in a comparatively short period of time.

For 1905 the following sums have been appropriated for the budget of the regular army:

	Ordinary.	Extraordinary.	Total ordinary and extraordinary.
	Crowns.	*Crowns.*	*Crowns.*
Ordinary army	282,259,143	19,640,252	301,899,395
War navy	42,869,440	8,156,970	51,026,410
Troops stationed in occupied territory		7,583,000	7,583,000
Total	325,128,583	35,380,222	360,508,805

A heavy extraordinary credit was besides applied for military expenses for 1904–5 of 163,176,000 crowns, to be divided in the following manner:

(*a*) For the regular army, 88,000,000 crowns; 10,000,000 to be employed during 1904, 78,000,000 during 1905.

(*b*) For the war navy, 75,176,000 crowns; 12,500,000 to be employed during 1904, 62,676,000 during 1905.

This credit of 163,176,000 crowns only represents part of the sum necessary to carry out the programme that the military administration has in mind, and which will cost altogether 337,956,000 crowns—that is, 217,000,000 crowns for the army and 120,956,000 crowns for the navy. This sum will be divided as follows:

	Army.	Navy.	Total.
	Crowns.	*Crowns.*	*Crowns.*
(*a*) In 1904	10,000,000	12,500,000	22,500,000
(*b*) In 1905	78,000,000	62,676,000	140,676,000
(*c*) After 1905	129,000,000	45,780,000	174,780,000
General total			337,956,000

The credit of 217,000,000 crowns for the army is to serve for the new guns (150,000,000 crowns) and for the purchase of equipment (67,000,000 crowns).

That for the navy, of 120,956,000 crowns, will be used in the following manner:

	Crowns.
To be used for the ships at present in course of construction to provide them with machinery, equipment, and ammunition	47,886,000
For the construction of new torpedo boats	34,000,000
For the construction of submarines and their stations	10,000,000
To complete the port of Pola and the Fasana Canal	6,700,000
For the guns of the "C" man-of-war (in dockyard) and for the providing of reserve guns	6,570,000
For the ammunition necessary to the *Archduke Frederick* (launched at the end of last April) and "C" man-of-war, monitors, and patrol vessels of the Danube fleet	7,200,000
For the increase in the ammunition to be distributed to the more antiquated vessels of the fleet	3,400,000
For reserve torpedoes	1,200,000
For coal and reserve supplies of the Pola maritime station	4,000,000

The sum to meet these requests of extraordinary credits will, it seems, be obtained by a 25-year redeemable loan, the

interest of which will be about 27,000,000 crowns; which sum will be economized on the budgets of the army and navy in future years.

In the ordinary budget of the army are to be noted:

(*a*) Creation of 87 depot officers, chosen from among the field officers who are not physically qualified to bear the fatigues of war, and who will be sent to the Armeestad (sedentary position). One hundred and seventy-four of these officers are needed and the other 87 will be nominated in 1906.

(*b*) Increase of seven places for Armeestad captains.

(*c*) Creation of a place of accountant officer (corresponding to cadet); to this place 120 noncommissioned officers will be chosen from among those of the older noncommissioned officers who should desire to enter the accountant corps.

(*d*) Increase of the number of teaching and directing officers in the military institutes of education and instruction of 54 captains and 120 subalterns; in 1905 only 14 captains and 36 subalterns will be nominated.

(*e*) Creation of a corps of subsistence officers; in 1905, 45 sublieutenants of subsistence and 45 subsistence officers will be nominated.

(*f*) Definitive institution in Vienna of the course for aspiring subsistence officers, with all the necessary instructing staff.

(*g*) Amplification of the sum destined for prizes for reenlisting noncommissioned officers.

In the extraordinary budget are to be noted:

(*a*) The first installment of 700,000 crowns of the 2,100,000 that are considered necessary to bring the number of cartridges to be distributed to each soldier from 100 to 120.

(*b*) Purchase of four movable wireless telegraphy plants.

(*c*) Purchase of a steam tender for the Pola maritime station, which, besides the internal service, will also have to carry out the transportation of rations for the guards and detachments scattered among the maritime forts depending from the Pola station.

(*d*) For the amplification of the artillery fire school at the Hajmasker (Veszprim) target range, the sum of 1,000,000

crowns has been appropriated of the 4,000,000 which will eventually be used for this purpose.

In the ordinary budget of the navy are to be noted:

(*a*) Increase of the cadets of the first class, which will be brought from 30 to 100, and diminution of those of the second class, which from 150 will be brought down to 80.

(*b*) Increase of the force embarked on the vessels, of 2,160 men.

(*c*) Sixth and last installment of 1,666,000 crowns for the cruiser *San Giorgio*.

(*d*) Fifth and last but one installment of 4,300,000 crowns for the man-of-war *Archduke Charles*.

(*e*) Fourth installment of 4,300,000 crowns for the man-of-war *Archduke Frederic*.

(*f*) Second installment of 3,500,000 crowns for the "C" man-of-war.

(*g*) First installment of 2,053,000 crowns for the construction of 16 new torpedo boats (9 of the second class and 7 of the third class), for which the sum of 8,000,000 crowns has been foreseen as necessary.

In the extraordinary budget are to be noted:

(*a*) For the construction of a central electric station in the arsenal of Pola, 40,000 crowns.

(*b*) For the building of signal and observation stations in Istria and Dalmatia, 20,000 crowns.

(*c*) First installment for the arming of the "C" man-of-war, 500,000 crowns.

(*d*) First installment for the ammunition of the man-of-war *Archduke Frederic*, 300,000 crowns.

(*e*) First installment of ammunition for the Danubian monitors *Temes* and *Bodrog*, launched at the end of last March, and for the 5 patrolling vessels in course of construction, 200,000 crowns.—*Esercito Italiano.*

BUDGET OF THE AUSTRIAN LANDWEHR FOR 1905.

In addition to the active Landwehr, the strength of which is given in the appended table, the budget provides for the active service of 40 officers and 14,000 men of the Ersatz reserve for 8 weeks and of 1,630 officers and 91,725 men of

this reserve for 4 weeks during the year. The Landwehr has its own Ersatz reserve, which is, of course, distinct from the Ersatz reserve of the common, or Austro-Hungarian, army.

The following are the numbers of first reservists and Ersatz reservists of the common army to be called into active service in the year 1905:

Infantry and rifles: 235,700 men for 13 days; 4,900 men for 24 days.

Cavalry: 8,400 men for 21 days.

Field artillery: 9,400 men for 13 days.

Fortress artillery: 5,600 men for 13 days.

Engineers: 5,400 men for 13 days; 250 men for 24 days.

Railway and telegraph regiment: 2,300 men for 13 days.

Train: 6,000 men for 13 days.

Except for 172,200 men of the infantry and rifles, the number of days of active service given above is in addition to the time required by the reservists to join their respective commands and to return to their homes. The budgetary estimate of this time is 4 days. The total number of reservists of all kinds of the common army to receive practical military exercise and instruction for at least 13 days in the year 1905 is therefore 282,900 officers and men. The first reservists are those who have completed their term of three years' service with the colors.

Budget of the Austrian Landwehr for 1905 compared with that for 1904.

Branch of the service.	1905.	1904.	Increase.	Decrease.
	Crowns.	*Crowns.*	*Crowns.*	*Crowns.*
Central administration (ministry of national defense, etc.)	1,675,000	1,651,900	23,687	.....
Landwehr	43,645,093	43,302,352	342,741	.....
Installment for construction of barracks in Galicia	50,000	100,000	.....	50,000
Recruiting expenses, mileage, preparation for mobilization, etc	158,220	159,920	.....	1,700
Military endowments	74,800	72,400	.....	2,400
Military police	534,199	472,956	.....	61,243
Gendarmerie	18,633,440	17,847,396	.....	786,044
Total	64,771,339	63,606,924	1,164,415	.....
Increase and balance on hand	1,015,521	989,248	.....	.....
Net amount required	63,755,818	62,617,676	1,138,142	.....

Budgetary strength of the Austrian Landwehr for 1905.

Branch of the service.	Officers.	Men.
Central administration	[a] 77	[a] 42
Landwehr:		
Commander in chief	16	12
Superior and post commands	248	297
38 regiments (115 battalions) of infantry	2,941	28,551
6 regiments of cavalry (uhlans), 2 squadrons of Tyrolian mounted rifles, and 1 squadron of Dalmatian mounted rifles	304	3,548
Military schools	89	[b] 1,178
Equipment depots	38	161
Headquarters of national defense in Tyrol and Vorarlberg	6	3
Military police	9	582
Gendarmerie	289	12,156
Total in active service	4,017	46,530

[a] The corresponding figures for 1904 included a number of civilian officials and clerks.

[b] Includes 566 cadets.

—*M. I. D. 1852.*

THE AUSTRIAN LANDWEHR.

Certain changes have been recently ordered in the organization of the Austrian Landwehr, the general effect of which is to increase slightly the peace strength of the various units of which this part of the armed strength of the Empire is composed. Under the new organization the peace strength of a company of infantry will be as follows:

One captain (mounted), 3 lieutenants,[a] 1 cadet,[b] 1 first sergeant, one noncommissioned officer clerk, 2 sergeants, 4 corporals, 4 lance corporals, 1 trumpeter,[c] 1 drummer,[c] 40 privates, and 4 officers' servants; total 63.

A regiment of infantry will have hereafter 68 officers, 748 men, and 8 public horses; formerly it had 54 officers, 667 men, and 8 public horses. This is the strength of a regiment of 3 battalions. The Twenty-third Landwehr Infantry Regiment, stationed at Zara, in Dalmatia, has 4 battalions. It

[a] It seems that 3 lieutenants were carried on the former paper organization of the company, but that only 2 were in actual service. The third is now to be supplied.

[b] There is to be 1 cadet for each battalion of a regiment. These cadets are graduates of the cadet schools and not of the military academies. The graduates of the military academies receive commissions as lieutenants immediately upon graduation.

[c] In the former organization the company had 1 trumpeter, or 1 drummer. Now it is to have 1 trumpeter and 1 drummer.

has under the new organization 88 officers, 988 men, and 10 public horses; formerly it had about 75 officers, 888 men, and 10 public horses.

A squadron of cavalry will have in the future 5 officers, 73 men, 4 public horses (for the use of officers), 7 private horses, 36 troop horses, and 20 remounts. A regiment of cavalry will have 45 officers, 495 men, and 444 horses.

New instructions have also been published for the Landwehr field officer's course. This course of instruction is held in Vienna and lasts from January 2 to May 15; that is, 4½ months. While it is called a field officer's course, the student officers are captains. The object of the instruction is to prepare captains for the duties of field officers.

The following is the substance of the new instructions:

The course of instruction will consist principally of practical exercises which, in character, extent, and order of succession, correspond to the provisions of the regulations for the instruction of officers and cadets in the schools for officers in the imperial and royal army. Formal examinations will not be held. The course will begin with theoretical instruction, the duration of which will depend upon circumstances. The classification of the student officers will be based upon their theoretical knowledge and upon the efficiency demonstrated in their execution of the practical exercises. As a rule the instruction will be given indoors until the 15th of April, and only once or twice a week in the open. After this date the exercises will take place almost entirely in the open.

The exercises will also comprise visits to the battlefields; practice rides; attendance at special troop exercises, rifle practice, firing experiments and construction of military bridges; inspection of technical establishments and participation in the course of instruction at the army small-arms firing school at Bruck, on the Leitha.

The last three weeks of the course will be spent in the study of localities which, on account of their situation and of their topography, are specially important or interesting from a military point of view, for the purpose of giving the student officers an opportunity to extend their knowledge of the influence exercised by accidents of the ground upon

troop leading in battle. During these last three weeks permanent fortifications will also be visited. These journeys will be utilized for discussions upon the relations of topography, field fortifications, and the organization of an army, to the leading of troops.

Special lectures will be delivered and discussions will be held upon the subjects of permanent fortifications, military establishments, military law, hippology, etc.

The school staff will consist of one colonel of Landwehr infantry, as commandant; one captain, as adjutant; 3 lieutenant-colonels or majors of the general staff, as permanent instructors; as many temporary and detailed instructors as may be required; one noncommissioned officer, as clerk; 5 orderlies, and 49 officers' servants and grooms. The number of student officers will be 40. The latter are all captains of infantry and of cavalry. The Landwehr has no artillery. An officer's servant is an enlisted man. He wears a uniform, but does not carry any arms.

A few general remarks concerning the Austrian Landwehr, which will also apply to the Honved, or Hungarian Landwehr, except in minor details, may be of interest.

The Austrian Landwehr infantry consists of 36 regiments, 35 of which have 3 battalions each and one of which has 4 battalions, and of 2 regiments of rifles, the latter being recruited in the provinces of the Tyrol and of Vararlberg. Each battalion has 4 companies.

The peace strength of the company and of the regiment is given above. The war strength of the various units is the same as that of the corresponding units of the army, that is, the company has 250 men, the battalion 1,000 men, and the regiment 3,000 or 4,000 men, according to the number of its battalions.

The armament, equipment, and all the auxiliary services and kind of training are the same as those of the army.

The Landwehr cavalry consists of 6 regiments of uhlans, 2 squadrons of Tyrolese mounted rifles, and one squadron of Dalmatian mounted rifles. Each regiment has 6 active squadrons, 1 pioneer platoon, 1 telegraph detachment, and 1 depot squadron, the latter existing, in fact, only in time of war.

The peace strength of the squadron and of the regiment is given above. The war strength of the various units is the same as that of the corresponding units of the army. For the squadron, this strength is 5 officers, 160 men, and 160 horses; for the regiment, 40 officers, 1,100 men, and 1,100 horses. The combatant strength of the latter is about 930.

The general conception of a Landwehr is that of a second line of the armed strength of a State, or that of a reserve for the first line, or active army; and it is generally supposed that the enlisted men of the Landwehr have completed the obligatory term of active service in the army. But the Landwehr of Austria, as well as that of Hungary, is recruited directly from the young men of the State found to be physically qualified for military service when they are 21 years old. In other words, it is recruited in the same way as is the army. But there is a great difference in the length of active service in these two divisions of the armed strength of the Empire. This service in the army lasts for three years, while in the Landwehr it lasts for only two years. It is therefore a matter of the greatest importance to a recruit whether he is assigned to the army or to the Landwehr. This question is determined by the drawing of lots.

The annual contingent of troops for the Austrian Landwehr is 10,413, and that of the Hungarian Landwehr 12,500. The peace strength of the Austrian Landwehr is 50,286 officers and men; that of the Hungarian Landwehr, about 31,263 officers and men. The war strength of the first, after deducting 8 per cent for loss in mobilization, is 164,000; that of the second, after a similar deduction, 164,000; total, 328,000. As these are in fact, if not in name, troops of the first line, they should be reckoned with the thoroughly trained troops of the first line that Austria-Hungary would have immediately available in case of war.

The annual contingent of recruits for the common army is 103,100. The men of the common army serve three years with the colors and seven years in the reserve. Deducting 4 per cent from each contingent for the annual loss through death, incapacity, and other causes, and deducting 8 per cent for loss in mobilization, the available and really service-

able strength of the common army [a] for war should be about 800,000. If to this effective we add that of the Austrian and Hungarian Landwehren, we find that Austria-Hungary should have, in case of mobilization, 1,128,000 thoroughly trained men, actually available and not existing merely on paper, physically fit for immediate operations.

The losses in the field armies would be filled first from the Ersatz reserve, and finally from the Landsturm. The Ersatz reserve is called into active service in time of peace for only three periods of training of four weeks each, except in case of emergency, when it may be continued in service as long as the emergency lasts. The Landsturm receives no compulsory military training in time of peace. The strength of these two reserves, the Ersatz reserve and the Landsturm, can not be learned.

INCREASE OF ARTILLERY, AUSTRIA-HUNGARY.

The project of the Austro-Hungarian war budget anticipates that this year the question of reorganization and increase of artillery will be solved. This is a question that has been prolonged for three years.

Austria-Hungary only possesses 42 regiments of divisional field artillery for its 47 divisions. Of these, the two of the Fifteenth Corps, of Bosnia and Herzegovina, are provided with mountain artillery; therefore they are short three regiments of field artillery.

The corps artillery will be reinforced by a group of howitzers for each army corps, except the Fifteenth. Therefore fourteen groups ought to be formed. It is not yet known whether these howitzer batteries will be of four or six pieces, nor has their caliber been definitely fixed upon; it will probably be of 10.5 cm., like those in use in the German army.

Besides, two new mountain batteries on wheels, narrow gauge, will be created to reinforce the groups of the Tyrol and one mountain battery to bring up to twelve the number of the Bosnia-Herzegovina batteries.

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[a] The "common army" is the regular army maintained by Austria and Hungary together. The Landwehr of each State is maintained separately.

There has also been talk of the constitution of a group of siege howitzers of 15 cm. and of the project of forming, later, fourteen similar groups for the army corps.

Lastly, two new battalions of fortress artillery will be created.—*M. I. D., 1366–h.*

REORGANIZATION OF THE AUSTRO-HUNGARIAN ARTILLERY.

The great news of the day in the neighboring kingdom is the announcement finally given that the desires long ago expressed by the Hungarian opposition are about to be satisfied. The Hungarian militia (Honved) is to have its own artillery. This was said by President Tisza at the meeting of the Hungarian Chamber on the 10th instant.

By this concession it is evident that the Government intends to obtain easily the increase of military expenses that it needs to reorganize the artillery according to the plans made. But the official reasoning is instead this: The Government never opposed the wishes of the Hungarians for the pure pleasure of opposing them, but because it was impossible for it to agree to them owing to the diversity of time of service existing between the artillery (3 years) and the Honved (2 years); now this impossibility no longer exists, with the two years' time of service, which, owing to a notable increase of contingent, will be extended to the whole army, excepting cavalry and mounted artillery.

Every division of Honved will therefore have a regiment of artillery, probably of six batteries.

Naturally, if the divisions of Hungarian Honved are to have artillery of their own, other regiments of Landwehr will be formed in proportion to the divisions of Austrian Landwehr.

At present the Austro-Hungarian field artillery is composed of 14 corps regiments and 42 divisional regiments—that is, four regiments for every army corps. (The Fifteenth Corps—Bosnia-Herzegovina—has nothing but mountain artillery.) There are altogether 224 batteries of 8 pieces—that is, 1,792 guns.

There are 8 Landwehr divisions and 7 Honved divisions; therefore 15 new regiments will be formed. And as, at the

same time, the regiments will be transformed to having 6 batteries of 6 rapid-firing guns there will be, altogether, 71 regiments of guns—that is, 426 batteries or 2,556 guns.

The increase is of 764 guns: and, as it can be considered that a rapid-firing gun is worth at least one ordinary one and a half, so the complexive increase of the Austro-Hungarian field artillery will result—as far as regards the guns—in over double the number.

Besides there must be added 14 regiments of field howitzers which are being formed.

It is known, though not generally, that to these 2,556 guns and 500 howitzers that Austria-Hungary is preparing to put into the field we could oppose 1,116 guns and no howitzers; altogether less than one-third.

And this in spite of the daily lessons on the importance of a numerous artillery that the war in Manchuria is giving us.

The Viennese political circles are not too well pleased with the news given them by President Tisza. They consider that the institution of a Honved artillery is too great a concession to the Magyars, as it is well understood that in this artillery the language is to be Magyar and not German. This is the case for all the Honved troops.

And meanwhile who is to provide the money for the expenses of the regiments of the Honved artillery? The Tagespost, of Graz, remarks:

"The common army budget must be exclusively used for the common army; drawing from the ordinary budget for the Honved expenses would not for a moment be countenanced. These drawings are sometimes used in uncertain undertakings, to hide from the shareholders how losses borne are covered up or how the revenues of some deficient branches are increased. But in the bookkeeping between the Empire and the two States everything must be perfectly clear; otherwise some fine day, following the desires of the president of the Hungarian ministers, all the materiel of the Vienna arsenal, or of some other depot of the common army, might be quite easily taken from the budget and used for the Honved.

What has been accorded for the common army weighs in the proportion of 66 per cent on Austria and 34 per cent on

Hungary. It would therefore be very unjust if Austria were not only to pay its own Landwehr and give 66 per cent for the common army, but contribute besides with this 66 per cent to the expenses of the Honved. It is clear that the guns of the 8 artillery regiments which are to be formed for the Landwehr will have to be paid for by us Austrians, but those of the 7 Honved regiments might well be paid for by the Hungarians."

Meanwhile the Neue Presse of the 10th instant stated that the Government is to immediately ask the Austrian Chamber of Deputies for the authorization to obtain a loan of 140 million crowns to cover the credits lately voted for the delegations.

As is known, it was at first said that it had been decided to ask only for the amount due this year.

Therefore it appears that the reorganization is to be hastened.—*Italia Militaire e Marina.*

NEW EXERCISE REGULATIONS FOR THE FORTRESS ARTILLERY IN AUSTRIA-HUNGARY.

The new regulations which have been experimented with for some time past by the troops, have recently been definitely adopted. They contain many points worthy of note.

I. DISPOSITIONS.

The regulation battery is composed of from 2 to 6 pieces, the cannon batteries are composed of 6 pieces, and the howitzer batteries of 4; and they are manned by a company of fortress artillery.

The company commander directs the fire only in the beginning and during the principal phases of an action; a subaltern, called "director of fire," attends to the rest, while another subaltern acts as his aid. The sections, of 2 pieces, are commanded by a noncommissioned officer, and 3 other noncommissioned officers are at the disposal of the commander. An orderly and telephonists also assist him.

For a battery of 6 pieces, therefore, 1 captain, 2 subalterns, 8 noncommissioned officers, and about 53 men are necessary.

The battery commander has charge of the selection of the

target, of the establishing of the elements of fire, of the steps to be taken for night firing, and of repulsing near-by attacks; it is therefore the commander's duty to determine when it is necessary to suspend fire temporarily, in order to use carbines.

As far as possible, the companies of the same battalion should be assigned to batteries of pieces of the same kind; they then constitute a group of batteries at the head of which is the battalion commander. A group can not consist of more than 4 batteries. The head of the group superintends the construction of the armament and the opening of fire of the dependent batteries; and at the beginning of fire and in the most important moments of the action he directs the fire itself. Before firing begins he assigns to each battery the section of country it is to cover, giving them such data as he may know, and, if possible sketches of the target; he then orders the sort of projectiles to be used and regulates the celerity of fire only when this should be necessary for the observation of results, the use of ammunition, or the general situation of the engagement.

If the target is wide each battery fires independently on its own section of country; if, instead, the target is limited or a battery is charged with getting the range, or the order in which the batteries are to fire has been prearranged, the batteries operate of their own accord, but with battery volleys.

All the attacking or defending batteries, together with their parks and refurnishing depots, constitute "section artillery" depending from their own artillery commander, who keeps near the general commander of a section. He regulates the action of the troops and of dependent establishments, arranging of his own initiative whatever is necessary to the activity of the batteries; he communicates his orders and arrangements by telephone or optical signals, or by means of messengers on horseback or on bicycles.

II. EMPLOYMENT.

The general commander, as a rule, only indicates the locality and the moment in which fortress artillery must co-

operate in an engagement, giving in a general way the idea of the tasks assigned them. The commander of fortress artillery must afterwards draw from these the necessary projects of employment and the orders that the general commander must afterwards impart to the fortress artillery.

The fundamental idea must be that of obtaining the superiority of fire, and, whenever possible, take the enemy by surprise. Nevertheless, all measures calculated to favor the opportune arrival of reenforcements of necessary mobile artillery reserves should be foreseen and predisposed.

All measures should be taken and all circumstances taken advantage of calculated to give the enemy trouble in the exploration of targets and the observation of fire; and vice versa, the fortress artillery must exercise all possible care in choosing advantageous conditions for exploration and its own reconnoissance. It will therefore be of the first necessity to provide accurate exploration of targets by the proper employment of the means provided for this purpose and to arrange a convenient system of optical or telephonic apparatus among well-chosen stations of observation, to the keeping of which system continual attention should be afterwards given.

Whenever possible fire should open simultaneously and by surprise with all the pieces available and continued energetically. Such fire ought also to be kept up, in some cases, during the night, especially against the enemy's lines of communication and reserves.

In attack the field artillery of the siege body and the heavy howitzer brigades attached to them should support the troops in the struggle to gain the approaches, disturb the work of the defenders by harrassing their lines of communication, their works, and their intervals, even at the greatest distances, and attempt to destroy the enemy's observatories and captive balloons.

As a rule, before the heavy artillery advances, artificial redoubts should be built, or at least the position should be masked. The howitzer artillery's essential task is to break down the enemy's artillery, shake the infantry, destroy the freedom of counter attack in the works of defense; and when the range allows, reaching the main body, and this

should be attacked from the very beginning of operations. When an attack is to be carried out, a violent fire should be opened against the point to be attacked.

The defending artillery should, of its own initiative, oppose the carrying out of the attacker's intentions and energetically support the counter offensive of its own party.

The fortress once placed in condition to resist the attack, the defending artillery must pick out with fire the most important points of the attacking body.

The artillery of the redoubts and of the surrounding batteries, temporarily reenforced by movable pieces, must oppose in every possible way the efforts of such of the enemy's artillery as should attempt to take up favorable attacking positions and to disturb all this zone, especially the roads, the field railways, the bridges, etc. This fire should be especially violent when the attackers are attempting to establish depots and bring up their heavy artillery.

As soon as the direction of the attack is clear, all efforts should be made to bring into line as fast as possible the reserve artillery, so as to gain superiority of fire over the enemy.

At the beginning of hostilities the defenders are naturally superior to the attackers in number of pieces, better knowledge of the country, and easier refurnishment of ammunition. They must therefore strive to make the best possible use of these momentary advantages.—*Italia Militaire e Marina.*

SANITARY STATISTICS.

The report of the sanitary statistics of the Austro-Hungarian army for the year 1902 is based on an average effective of 296,913, rank and file. There were altogether 190,365 cases of sickness, or 64 per cent, of whom 97,364, or 32.8 per cent, were tended in the hospitals. In 1901 the proportion of the number of sick amounted to 66 per cent; this year consequently shows a slight decrease in the percentage. The number of deaths for 1902 amounted to 699 men, not including 349 suicides, or 0.235 per cent, as against 0.244 per cent in 1901.—*United Service Magazine.*

MOTOR CARS.

The importance of motors in war time has decided the Austro-Hungarian war minister to organize a Landsturm motor corps. This corps is divided into three groups, viz, officers carrying orders, drivers for peace maneuvers, and members undertaking to provide motors for the army in war time.

During maneuvers motorists are attached to the headquarters. The first group is specially charged with the transmission of orders and the transport of general officers and the members of their staffs; only persons of Austro-Hungarian nationality may belong to it, of the rank of supernumerary officer, and who have already gone through maneuvers as motorists. A special commission lays down the value of the proposed vehicles; a 2½ horsepower is required for motor cycles, 5 horsepower for small cars, and 8 horsepower for larger cars. The military administration undertakes the feeding of the chaffeurs and provides the fuel; it gives a daily rate of pay of 30 kroner (1 kroner= about 9d. in English money) per motor car, and of 6 kroner per motor cycle. In each army corps staff a list is kept of all soldiers of the regular army and reserve who may be employed as drivers of motor cycles, motor cars, or motor traction engines.—*United Service Magazine.*

MOTOR CARS FOR TRANSPORTATION OF STORES.

In consequence of the preliminary experiments which took place last year, the Austro-Hungarian military administration has this year attached, as a tentative measure, some motor trucks to the subsistence magazines at Vienna, Prague, Gratz, Cracovie, and Przemysl for the transport of provisions, forage, and bedding from the magazines to the barracks and garrison establishments. The Reichswehr remarks that the above means of locomotion is more economical than animal traction, and is superior to all others as regards rapidity of transport and facility of loading. Under these conditions it is highly probable that the present tentative measure will shortly become a permanent one.—*United Service Magazine.*

SCHOOL OF TELEGRAPHY.

The Reichswehr announces that during 1904–5 there will be organized, for the first time in the Austro-Hungarian army, an infantry telegraph course, to be held at Tulin, similar to the one already instituted for cavalry. As is the case in the latter, the object of the new course will be to familiarize officers and men of infantry corps with the field telegraph and telephone service. To be admitted to the course, officers must have served for at least two years with their regiments. The course will this year be directed by a captain of the railway and telegraph regiment, assisted by 4 infantry officers as professors and by 17 noncommissioned officers as assistants. It will be attended by 7 sublieutenants and 159 noncommissioned officers and men of the infantry, of whom 2 officers and 20 men will belong to the Landwehr.

The cavalry telegraph course will be attended by 11 sublieutenants and 84 men; 12 noncommissioned officers will be employed as assistant instructors. The period of both courses is for 9 months, from November 1, 1904, to July 31, 1905.—*United Service Magazine.*

BOLIVIA.

THE ARMY.

The military forces of the South American Republic of Bolivia consist of the regular army and the national guard. By the laws of April 6, 1875, and of January 31, 1880, universal service was already introduced into the country. Every Bolivian is liable for military service between the ages of 21 and 40. From the age of 21 to that of 25 years he belongs to the regular army, in which he spends two years with the colors. From thence he passes into the ordinary reserve, in which he remains till the age of 30. During the remaining 10 years he serves in the special reserve. Priests, those unfit for the service, criminals, etc., are not required to serve. The following are released after serving for 6 months: Only sons and sole supports of widows, etc.; sons of those who have fallen in the war; young men who are candidates for state educational establishments, or those who have received a certificate of education. Those who are exempted from service, with the exception of criminals, pay a fine of 5 bolivianos (1 boliviano = 1s. 9d. in English money) half yearly for the 2 years which they should have spent with the colors. Those who are released after 6 months' military service pay the same sum for the remaining period of service, viz, for 18 months.

The country of the Republic is divided into 9 military districts, viz: La Paz, Beni, Cochabamba, Oruro, Potosi, Santa Cruz, Chuquisaca, Tarija, and Litoral. There is, in addition, a special military administration in the southern portion of the country in the territory of Colonia. In the principal town of each district there is a major as chief of the departmental general staff, who is under the orders of the general commanding. The regular army consists of 5 infantry battalions, mountain artillery, and 1 cavalry regiment. In addition, in every district there are some small commands and a few small garrisons at the different fron-

tier stations of the country. The strength of the units is determined every year by the National Congress. The personnel of the ministry, an arms and an inspection group, the corps of officers, the general administration, the military law court, and the board on fitness for the army belong to the army administration. The general staff consists of a chief of the general staff of the army, 3 colonels and detachment commanders, 3 majors, 3 European officers, 2 captains, and 2 first lieutenants. Under the general staff are the military academy, the commissariat, the military college, and higher school.

Infantry battalions consist, on an average, of 1 colonel, 1 lieutenant-colonel, 1 major, 6 captains, 4 first lieutenants, 5 lieutenants, 10 sublieutenants, 72 noncommissioned officers, 10 bandsmen, 2 drummers, and 220 men, exclusive of the Third Battalion, which is only 150 strong. In addition to the above complement, a surgeon and a bandmaster must be added. The artillery regiment consists of 1 colonel, 2 lieutenant-colonels, 1 major, 5 captains, 4 first lieutenants, 6 lieutenants, 6 sublieutenants, 1 surgeon, 1 bandmaster, 39 noncommissioned officers, and 184 men. The "Abaroa" cavalry regiment consists of 1 colonel, 2 lieutenant-colonels, 1 major, 7 captains, 5 first lieutenants, 6 lieutenants, 10 sublieutenants, 1 surgeon, 1 staff trumpeter, 74 noncommissioned officers, and 160 men. The commissariat has 1 colonel, 3 lieutenant-colonels, 3 majors, 5 captains, 2 first lieutenants, 8 lieutenants, 2 sublieutenants, 14 noncommissioned officers, and 59 men. The soldiers' schools have a personnel of 2 staff officers, 10 sublieutenants, 30 noncommissioned officers, and 90 men; the military college, one of 1 lieutenant-colonel, 2 majors, 2 captains, 2 surgeons, 1 sublieutenant, and 150 men.

The strength of the various commands in the districts vary, according to the size of the latter, from 20 to 80 men. The detachments are commanded sometimes by staff officers and captains and sometimes by first lieutenants and lieutenants. They are quartered in Tarija, Santa Cruz, Trinidad, Porto Suarez, Uyani, Mapiri, and Tupisa. The small garrisons in Caiza, Creveaux, and Murillo, consisting of about 20 men each, are commanded by lieutenants.—*Journal of the Royal United Service Institution.*

BRAZIL.

THE NAVY.

On the 6th of December last the Brazilian Senate passed, at its second reading, a bill for the new formation of the navy. The programme of construction has been decided upon as follows: Six battleships of 13,000 tons each, of the English *Triumph* class; 3 armored cruisers of 9,500 tons each, of the Russian *Bayan* class; 6 torpedo-boat destroyers of 400 tons each; 6 torpedo boats of 300, and 6 of 50 tons each; 3 submarines and 1 transport of 6,000 tons. It is not decided yet where these vessels will be armed and plated, but according to the papers this will probably be carried out in England.—*United Service Magazine.*

BULGARIA.

THE AUTOMATIC PISTOL.

The Bulgarian Government has adopted the Borchardt-Lüger automatic pistol, called the "Parabelum," for the armament of officers of all branches of the service. The official designation of the weapon is "Automatic pistol, model 1903." The Government will provide this weapon at a cost of 65 francs, and cartridges at 6.25 francs the hundred. The Borchardt-Lüger pistol is already in use in the Swiss army.—*United Service Magazine.*

NEW FIELD GUN.

Bulgaria has placed an order amounting to 26,000,000 francs with the Schneider firm at Creuzot for 81 quick-firing batteries, with 4 guns and 9 ammunition wagons per battery. The gun is very similar to the one already in use in France, but weighs less; is protected by shields 4 mm. thick and weighs 1,007 kilograms. The ammunition wagons are precisely similar to the French.—*United Service Magazine.*

CHINA.

EXISTING CONDITION OF MILITARY AFFAIRS.

In the discussion of the possibilities which might occur during the prolonged course of the war in the Far East, the armed strength of China would conceivably be taken into consideration, and in doing so every soldierly quality is frequently denied to the Chinese troops. Nothing could be more erroneous than this point of view. Against it may be set the following facts: That for many years German instructors in China have been laboriously engaged in active military work, and that for two years nearly 200 Japanese officers have been in the Chinese service in order to train an efficient army for the neighboring nation. In order to obtain an accurate picture of the, even at the present day, somewhat complicated condition of Chinese military matters and of the troops available for the defense of the country, it is best to strictly discriminate between the old and the new army, and to draw one's conclusions for oneself. To the old army belong (apart from the Mongolian landsturm and the Thibetan militia, which need not here be taken into consideration) the Manchu, or "Banner troops," and the "Green Flags," or provincial troops. Details of the origin and former organization of these troops have already been given in the Military Notes in the Journal for July, 1903.

It is evident, without further words, that the great number of the above-mentioned troops could advance no pretensions as an efficient military force, and that therefore an entirely new army on a modern basis must be formed if the military consideration of the Middle Kingdom was to be of any importance. Old Li Hung Chang was called upon to solve these difficult problems. He had already proved himself a savior in time of need, and it was owing to earlier influence that German instructors had been obtained for training the Chinese army. Under this guidance the best elements of

banner and provincial troops were gradually formed into two armies, which, under the designation of Pei-yang army in the Pe-chi-li Province, and Hu-pei army in the province of the same name, form the elite of the present Chinese army, and are destined to carry the land forces of the country to a new prime. Li Hung Chang did not live to see the consummation of his work, for he died before it first began to bear fruit, and discipline and order obtained in the ranks of the newly raised troops. But Chang Shi Tung, the present governor-general of the Hu-pei Province, as well as Wang-Shi-Tai, the existing viceroy of Pe-chi-li, have taken up Li Hung Chang's work with the greatest zeal, and, supported by a numerous Japanese personnel, and with the help of individual military instructors, have already gained very respectable results. Especially conspicuous are those obtained by Wang-Shi-Tai, whose army, with the station of Wu-tang, of 7,700 men and 60 guns, is now reckoned the elite of the Chinese army.

The Pei-yang army, too, enjoys a good reputation, but it still lacks uniformity in its training and in its methods of the performance of military duties. This failure is partly accounted for by the fact that the eight groups into which the army is divided are quartered great distances from one another and the authorities have not yet been able to find a sufficient training personnel for each group. The best trained of this army, whose combined strength amounts to 37,000 men and 194, in part, new guns, are the North China troops, which, with 9,030 men and 45 guns, have their headquarters in Pao-ting-su, and at present guard the frontier against Russia on the Liao-ho. They would, therefore, too, be those troops on whose support in the first line the Japanese could count upon if ever there should be an alliance between the two kindred nations. The right and left wings of the Wu-wei corps—two other groups of the Pei-yang army, which consist of 16,280 men and 82 guns, are quartered in Peking, Nu-Chang, and Chung-chou—are also favorably mentioned, after they had latterly been trained under Japanese officers. The "Strong" corps, the Huei corps, and the "Brave" corps, numbering altogether 9,000 men, appear to be still somewhat backward, probably because

their instructors—discharged Chinese military cadets—are too young and inexperienced for their heavy task.

To all appearance the authorities are not satisfied to remain as they are and to content themselves with present results. On the contrary, orders have been issued that troops in other provinces should be trained on the Pei-yang and Hu-pei model. In the meanwhile it is well to remember that the military equipment of China, the work in the perfecting of her army, and the results achieved are by no means such poor stuff as there is an inclination still to consider them from reports drawn from former times. Though the work of reform is not yet completed it behooves us, nevertheless, to follow the same with attention, so as not to arrive at a distorted judgment.—*Militär Wochenblatt.*

DENMARK.

MACHINE GUNS FOR CAVALRY.

The Internationale Revue gives an account of some trials made in Denmark with a view to arming the cavalry with a very light species of machine gun called "Rekylgewaer," or recoiling rifle, the invention of the Danish war minister, Major General Modsen. This weapon has been adopted by Denmark, Sweden, and Norway.

In Denmark every squadron of hussars has been given three of these weapons and a led horse to carry the ammunition. Three men form the machine-gun section. The weapon is carried on the left side of the saddle, hanging behind the rider's thigh; two cartridge bags, containing 10 to 16 cartridge bands, are attached to the left of the front fork of the saddle. As a counterweight, the horse's forage and the rider's equipment are carried on the right of the saddle. The total weight carried by the horse thus equipped with the rifle and 300 cartridges does not exceed 91 pounds. The ammunition horse carries six cartridge bags on a saddle specially designed for them. The "Rekylgewaer" itself does not weigh more than 13½ pounds—that is to say, far less than the machine guns already in use in most armies. It is the same length as the cavalry carbine and is worked by one man. It is very quickly prepared for action and offers a considerably smaller target than the machine gun, and the trooper managing it can remain in the ranks during all movements of the squadron. The rapidity of its fire amounts to 750 shots a minute and the initial velocity is 2,340 feet—that is to say, that at least the same results may be obtained with this weapon as with the machine gun.

The introduction of this weapon will give a great power

to cavalry fire action without the inconvenience of dismounted action, during which a large proportion of the personnel is merely employed in holding horses, whilst they are at the same time exposed without defense to attacks by hostile cavalry. By means of the "Rekylgewaer" the squadron can almost always remain mounted and need only employ those weapons for fire action. Three well-trained men can fire 144 shots a second, which is more than a dismounted squadron can fire in the same time. Comparative trials were made between the fire of the "Rekylgewaer" and a Hotchkiss machine gun during the cavalry maneuvers in Jutland last year. Both weapons opened fire in twenty seconds. The machine gun, however, offered a larger target than the "Rekylgewaer" and was not able to maneuver so freely in the thick undergrowth. The new weapon was superior in accuracy. In firing on targets representing a column and a line of skirmishers the Hotchkiss machine gun fired 864 shots and obtained 96 hits, or 11 per cent; whilst the "Rekylgewaer" fired 540 shots and obtained 95 hits, or a percentage of 16.—*United Service Magazine.*

EXPERIMENTS WITH UNIFORMS.

Almost all armies are now experimenting to find the most comfortable and least visible kind of uniform. The German paper Der Tag gives the following information with regard to experiments made in the Danish army.

First of all, it was a question of substituting a loose blouse for the present tunic; therefore men wearing various kinds of apparel were put through marches. The experiments turned out greatly in favor of the blouse; the men wearing it suffered the heat and cold much less. In fact, owing to its looseness, the blouse is less warm in summer and in winter allows the men to wear under it some other garment which makes it possible for them to dispense with the cloak in spite of the cold.

The most practical head covering was proved to be a "kepy," like that worn by the Austrian soldiers, of gray waterproof cloth, with numerous ventilators and a cork ring to allow the passage of air.

The shoes will be substituted by boots. All the leather objects are made of natural leather and all glittering objects of the equipment were done away with.

Besides, several experiments for the colors to be adopted both by day and by night and in various conditions of light were made. Naturally it was not always the same color which was best in all cases. The average results of the experiments allowed colors to be classified as follows: (1) Gray blouse; (2) dark-gray cloak; (3) light-blue cloak; (4) dark blue (old color of the Danish uniform); (5) light-green blouse; (6) dark-green blouse.

The best color seems to have been a medium gray, slightly dotted with green.—*Esercito Italiano.*

ENGLAND.

WAR OFFICE REORGANIZATION.

With the publication on January 6 of the special order of the British war office reorganizing the military commands and staff in the United Kingdom, practically all the changes recommended by the war office reconstitution committee have been initiated. That committee made its report about a year ago, and the following were its leading recommendations:

That a defense committee should be appointed, whose duty it would be to "obtain and collate for the use of the cabinet all the information and the expert advice required for the shaping of national policy in war and for determining the necessary preparations in peace."

That the office of commander in chief be abolished.

That an army council consisting of 7 members (4 military and 3 civil) be appointed to administer the affairs of the war office.

That an inspector-general of the forces be appointed, who would report to the army council the practical results of the policy of the council.

That administration be separated from executive command, and that the principle of decentralization be carried as far as possible, and that for the accomplishment of this object the army-corps system be done away with and that the United Kingdom be divided into "commands," each command including one or more "administrative districts."

The special order above referred to divides the United Kingdom, exclusive of the London district, into 7 commands, as follows:

The Aldershot command (the army corps), headquarters, Aldershot.

The Southern command, headquarters, Tidworth.

The Eastern command, headquarters, London.

The Irish command, headquarters, Dublin.

The Scottish command, headquarters, Edinburgh.
The Northern command, headquarters, York.
The Welsh and Midland command, headquarters, Chester.

Paragraphs 2, 3, and 4 of this order read as follows:

"2. In each command there will be a general officer commanding in chief who will be responsible for the training, efficiency, and discipline of the troops, and for the administration of the command.

"3. For the purpose of organization for war, training and instruction of troops, education of officers, execution of schemes for maneuvers, field operations, etc., the general officer commanding in chief will be assisted by officers of the general staff.

"4. To the staff of the general officer commanding in chief there will be appointed an officer, to be styled major-general (or brigadier), in charge of administration, who will be intrusted with the administrative services of the command. This officer will exercise his authority by order of the general officer commanding in chief, and the latter will delegate to him such extended powers as will enable him to deal with all administrative matters which do not involve questions of principle or policy; and upon all such matters he is authorized to correspond with the war office direct."—*M. I. D., 1174–e.*

COMMANDS AND ADMINISTRATIVE DISTRICTS.

The army corps system has disappeared and "commands" have been organized in their stead, thus partially carrying out the recommendations of Section II, Part II, of the report of the reorganization committee. The eight administrative districts considered in that section of the report have not been organized, presumably for financial reasons. It was through the instrumentality of the major-generals commanding these administrative districts that the reorganization committee proposed to decentralize the war office and at the same time relieve the general officers commanding in chief of much administrative routine, so that their entire time could be devoted to the training and preparation of the forces for war.

An attempt is being made in the Aldershot command (for-

merly the First Army Corps) to accomplish something in this direction by dividing the staff of the command into two divisions, the "general staff" and "administrative staff."

The general staff will work immediately under the lieutenant-general commanding, and will consist of Col. R. C. B. Lawrence as colonel of the general staff, and Bvt. Lieut. Col. D. Henderson, D. S. O. Among the subjects which will be dealt with by them will be: Intelligence, the instruction and training of troops, the preparation of schemes, and the allocation of funds for maneuvers.

The administrative staff will be under Brig. Gen. E. M. S. Crabbe, C. B., and will consist of Bvt. Lieut. Col. J. R. F. Sladen, D. A. A. G.; Col. W. F. H. S. Kincaird, A. Q. G.; Bvt. Lieut. Col. R. A. K. Montgomery, D. S. O., D. A. Q. G. Col. J. C. Oughterson, director of supplies and transport; Col. T. Heron, chief ordnance officer, and Lieut. Col. C. Rutherford, C. M. G., principal veterinary officer.

The subjects which will be dealt with by this staff include organization, mobilization, recruiting, discharges, discipline, interior economy, movement of troops by rail, remounts, and those duties which are generally dealt with by the director of supplies, the principal medical officer, and the chief ordnance officer.—*M. I. D. 1174–a.*

INSPECTOR-GENERAL OF THE FORCES.

Army Orders 168, of October, 1904, gives the duties of inspectors under the inspector-general of the forces. The general instructions to inspectors are as follows:

"The inspectors are the subordinates of and will report to the inspector-general of the forces. They will confine their inspections and reports to the efficiency and training for war of the arms to which they are appointed.

"They will, by frequent inspection and report throughout the United Kingdom and those portions of the Empire where troops under control of the home Government are stationed, insure that the methods of training make for uniformity.

"They will satisfy themselves that the provisions of the training manuals are adhered to and will point out any de-

ficiencies, errors, or omissions which their practical application may bring to light.

"To enable the inspector-general to keep the army council aware of the practical results of its policy, the principal duty of the inspectors will be to closely watch and form an opinion on the efficiency of officers, men, and horses, the class of recruits, both as regards physique and character, noting any locality from which recruits of an inferior grade come, the quality of remounts, the handling of troops, the standard and system of training, the suitability and completeness of equipment, the mobilization arrangements, and generally all that affects the readiness of the forces for war. They will take note of and encourage suggestions for improvement of training, equipment, and efficiency, and will bring to the notice of the inspector-general any that may be considered worthy of the attention of the army council. Their field of inspection will cover the United Kingdom and those portions of the Empire where troops under the control of the home Government are stationed."

This order also gives the special instructions for the inspectors of cavalry, royal horse, and royal field artillery, royal garrison artillery, royal engineers, and the inspector of equipment and ordnance stores.—*M. I. D. 1174–a.*

COMMISSIONS IN THE REGULARS FOR OFFICERS OF THE MILITIA AND YEOMANRY.

The new regulations under which these commissions would be granted were published in June, and an examination of candidates was held in September. To enable an officer to compete he must be between the ages of 20 and 25, and must be recommended bv his commanding officer. He is examined in—

Military history and strategy.
Tactics.
Military engineering.
Military topography.
Military law.
Military administration and organization.

The examination is competitive, and in addition to obtaining a sufficiently high place in the order of merit a candi-

date is required to obtain the qualifying minimum of 0.4 of the marks in each subject and 0.6 of the aggregate.

One hundred commissions were to be given at this examination, provided that number of candidates reached the required standard. Two hundred and twenty competed, and out of this number only 35 came up to the requirements, but on a reconsideration of the examination papers 20 more were allowed to qualify.

TERMS OF SERVICE.

On October 20, 1904, a special order was issued, making the terms of service of the infantry of the line as follows:

1. All enlistments will, until further orders, be for a period of 9 years with the colors and 3 years in the reserve.

2. Service pay and the allowances for messing and upkeep of kit, etc., will be issued under existing regulations.

3. The term of service for boys will remain 12 years, as at present.

There were not enough men enlisting for the long-term service to meet the drafts for foreign service, where only long-termed men are sent, and in the hope of remedying this difficulty the short (3 years) enlistment was abolished. Contrary to general expectation, a good many men are now enlisting for the 9 years' term.

The men within and without the army who are in favor of instituting universal service would have been satisfied if men had not come forward to enlist, as their failure to do so would have impressed upon the country the necessity of universal service. But if men continue to enlist in such numbers as they have since this order was published, there will be enough men to meet the foreign-service drafts, and the advocates of conscription must await a more favorable opportunity.—*M. I. D. 1174–a.*

SHORTAGE OF OFFICERS FOR THE MILITIA.

The militia establishment, as laid down in army orders, is 3,432 officers and 123,510 of other ranks, exclusive of the permanent staff. A year ago 667 commissioned officers were wanted to complete the establishment, and now 916 are

needed. There is a considerable uncertainty as to the future of the militia, and it is not probable that many of these vacancies will be filled until the war office has adopted a definite policy in regard to this branch of the service.—*M. I. D., 1174–a.*

PROPOSED ARMY JOURNAL.

The military publication to be known as "The Army Journal of the British Empire," which was provided for in Army Orders 90, series 1904, will not be produced. It was found that the cost of publication would be more than was at first supposed, and, as there were not sufficient funds available, the idea of publishing such a journal was abandoned.

Many officers believed that it would prove a mistake for the war office to attempt the publication of an official journal of this character and were pleased when the announcement was made that it would not appear. Some species of arrangement has been made by the war office with the United Service Instituion for publishing in the journal of that institution such of its information as the war office may wish to have reach the army and the public generally.—*M. I. D., 1174–e.*

THE NEW RIFLE.

The general belief that a short rifle must necessarily be much less accurate than a long rifle has set the inventors to work to devise a rifle that will have a long barrel and at the same time will be a comparatively short weapon. To do this the mechanism is brought farther back into the stock. At least two such rifles have been exhibited here, but they possess no new principle.—*M. I. D. 1174–e.*

REPORT ON TRIAL OF THE SHORT RIFLE BY THE ARMY AND NAVY.

For purposes of trial 1,050 rifles were made and issued to three cavalry regiments, seven infantry battalions, the royal navy, and the royal marines. The tests extended over 3 months, and reports were made upon the accuracy, rapidity

of loading by charger, shooting, advantages of a long hand guard, and handiness of the rifle; also as to the desirability of an adjustable fore sight hooded or unhooded, whether it should be a bead or a barleycorn, and whether the lever type of back sight was preferred to the "H" pattern on long rifle. The question of a wind gauge; the general working of the bolt mechanism, including the ease or otherwise with which it could be assembled or stripped; the improved safety catch and drag pull-off, and the recoil, as compared with that of long rifle, were also considered. The influence of the shortening of the rifle by 5 inches on the use of the bayonet also received attention.

The reports showed that the accuracy of the rifle was satisfactory and that the new weapon was superior to the service rifle in handiness, rapidity of loading, and firing. But, as the navy considered that a cut-off was necessary, this (with a piling swivel subsequently asked for) is fitted to all naval rifles. From the reports received the small-arms committee recommended the rifle as suitable for universal use. They were of opinion that the barleycorn should be adhered to, pending further trials with the other patterns of fore sight, and that the sight should be adjustable, with open-topped hood. The lever type of back sight without wind gauge was recommended (a more satisfactory type of wind gauge has now been devised and has since been adopted), and a long hand guard was to be fitted. The charger system of loading was also recommended, the 10-round magazine being retained, but with small modifications to facilitate loading and clearing the magazine of sand, etc. The mechanism was considered satisfactory, and the committee concurred in the omission of the cut-off, but were of opinion that the mechanism should be capable of taking it should experience show it to be necessary; they were also agreed as to the drag pull-off recommended. They considered the slight increase in the recoil to be unimportant, and they advised that the bayonet should be of same length as that for the long rifle.

A rifle, as recommended by the committee, was then made and approved, and arms are now being manufactured of this pattern with a wind gauge.

Further tests of this rifle, chiefly for its behavior in sandy, dry climates were made in Somaliland, 100 of these weapons, which were first tried at home, being sent out for this purpose. The arms stood the test well; the men were reported to like the rifle and to shoot well with it, the increase of recoil being imperceptible; the lightness and convenience in handling gave universal satisfaction; the complete casing of the gun in wood was fully appreciated.

Trials were also conducted at Hythe to compare the value of charger loading and single loading from bandolier; these gave most satisfactory results in favor of the former, and tests of accuracy of sighting at long ranges were also carried out.

Trials have been made at Hythe to test the accuracy of the short rifle in comparison with the long service rifle and several foreign military rifles. The following are the results:

Country.	Figure of merit.[a]			
	200 yards.	500 yards.	1,000 yards.	1,500 yards.
France	0.33	0.58	1.29	3.42
Germany	.35	.77	1.52	4.02
Italy	.27	.73	2.04	3.04
Great Britain:				
(*a*) Long rifle	.27	.62	1.72	4.43
(*b*) Short rifle	.21	.71	1.21	2.99

[a] The "figure of merit" represents the average deviation of the bullet from the center of a group of shots. The lower the figure of merit, therefore, the greater the accuracy of the rifle.

—*Journal of the Royal United Service Institution.*

NEW EXERCISE REGULATIONS FOR THE ENGLISH CAVALRY.

We attempted in a recent article to give an accurate idea of the fundamental principles on which the new temporary regulations for the English cavalry are founded, and which were compiled under the personal direction of Lord Roberts, who dictated the preface himself.

The carbine, according to Lord Roberts, is the cavalry's principal weapon; consequently fighting on foot would be the normal way for cavalry to fight.

The regulations are divided in six parts and two appendixes.

First part: Individual instruction on foot.

Second part: Equitation.

Third part: Exercises and evolutions on horseback.

Fourth part: Tactical principles and exploration services.

Fifth part: Various operations.

Sixth part: Honors and parades.

First appendix: Gymnastic exercises.

Second appendix: Firing.

We have principally to deal with the first and fourth parts; with the former because it contains the method to be followed to form a capable foot combatant; the latter because it minutely analyzes the use of the fighting arm and its main task during exploration.

As to the other parts of the regulations we may say at once that they present no special features. The exercises and evolutions of squadrons, regiments, brigades, and divisions are more or less the same as ours, which are already extremely simple in formations and movements, and the same may be said with regard to the equitation. The only point to be noted is that, both for the preparation of the horse—to make it into a truly military horse—and in what concerns the exercises and evolutions, work in the open country is as far as possible recommended. The limit of time in which the training of the horse and instruction of the troops is to be carried out is also accurately stated.

In conclusion, such parts as deal with horsemanship, exercises, and evolutions do not differ very materially from the rules in force for other cavalries, for the intention to make good horsemen is therein very clear. And this is perfectly in keeping with the ideas expressed by Lord Roberts and which we have already mentioned.

The first part, instead, takes us into an entirely new world, as far as regards cavalry exercises. One must, nevertheless, recognize and appreciate the merits of the compilers of the regulations who do not limit themselves, as is often the case, to point out what ought to be done, but also suggest the way to do it. The statement has been made that the cavalry's

principal weapon is the carbine, and this statement has been adhered to.

Therefore, this first part has been calculated to form, from the very first days that the recruit is under arms, an able carbine fighter, and with this object it goes into such minute particulars that it might almost be taken for a treatise on the training of the infantry.

Naturally all this impresses—and not favorably—the cavalry officer who undertakes to study English regulations; but in spite of this he can not but admit that the system preached is certainly practical and can not fail to bear good fruit.

For what is the purpose of these rules? To impress upon the recruit's mind, from the very day he dons his uniform, the importance of the firearm he holds and of the fighting on foot. As soon as the recruit has mastered the mechanism of his carbine and can handle it properly he is immediately and carefully taught the principles of firing, "because it will be from the first successes obtained in the first target practice that an interest in shooting will develop; and this interest will last for all the time of the soldier's service." So it happens in this individual instruction—which is as a rule imparted from November to January—that skirmishing instruction is at once proceeded with, and this is divided into two parts: (1) Preliminary instruction on level ground; (2) practical application of the principles taught, to tactical problems. And it is here that, appropos of these instructions, those very detailed rules and regulations which have been already mentioned are dealt with.

In our first article we frankly expressed our opinion on the subject of Lord Roberts's pretension of making the cavalryman as good a dismounted fighter as an infantryman himself, without, at the same time, injuring in any way the cavalry spirit. We will not here repeat our opinion on the necessity of modern cavalry having to fight with fire. We will not deny—in fact will admit—that the English regulations, as far as fighting on foot is concerned, are far superior to any in force for other European cavalries, and therefore deserve careful examination. We will never agree,

however, on the purpose to which they aim—that of making the cavalryman consider the carbine as his principal weapon.

On the other hand, a careful consideration of the matter shows a veritable contradiction. Three months—from February to April—are dedicated to theoretical and practical platoon instruction; two months—May and June—to squadron instruction; about two months—June and July—to regimental evolutions; the same number of months—from July to September—for brigade evolutions, leaving September and October for maneuvers. This division of instruction shows very clearly that mounted exercises and evolutions are taken much more notice of than fighting on foot. Even admitting that these exercises and evolutions include the dismounting of the various units, the fact remains that a greater part of the year is dedicated to riding instruction. Therefore, in our opinion, giving such accurate exercise and evolution instruction is in direct contradistinction with the fundamental principle already mentioned that cavalry must principally fight on foot.

This principle would logically lead to forming a mounted infantry. The English regulations, instead, want to make of the horseman a good fighter both on foot and mounted, and this, we are quite sure, is absolutely impossible.—*Italia Militaire e Marina.*

NEW ARMAMENT FOR FIELD AND HORSE ARTILLERY.

The new quick-firing guns for field and horse artillery and the new rifles, are not being manufactured as rapidly as was anticipated when they were first adopted, especially the gun for the field artillery.

There appear to be three reasons for this:

1. This is an 18½-pounder, and the committee that adopted it were not unanimous in favor of it, a minority insisting that the gun and the projectile were both too heavy. This caused some hesitation about giving the order for the construction of the guns.

2. Having waited so long before beginning this much needed re-arming, many officers were in favor of waiting a little longer in order to get the benefit of the experience in

the Russo-Japanese war. This perhaps caused some hesitation.

3. The actual revenues for this year are falling short of the estimated revenues and, consequently, Parliament can not be expected to grant a large military budget for the coming fiscal year. The first guns that are turned out are to go to India to re-arm the field artillery there, and are to be paid for out of Indian revenues; but if their manufacture is pushed rapidly the Indian order will be filled before the authorities will have funds sufficient to warrant them in giving the order for the manufacture of the guns for the home artillery. This doubtless caused some hesitation.

However, an order for some of these guns was finally given, and they are now being manufactured in the Government and private plants, and the work has proceeded so far that the Government is now committed to this type of gun, whether it is the best or not. Under the circumstances no definite statement can be made as to the time when the Home Artillery will be equipped with this gun.—*M. I. D. 1174–a.*

REARMAMENT OF THE FIELD ARTILLERY.

It is understood that the first order for the new guns was given on May 5, 1904, immediately after the report of the experimental committee was received; that 21 batteries with their wagons are ready, and that 15 more batteries will be added by July next; lastly, that by March 31, 1907, 161 batteries, or 966 guns, with wagons and ammunition complete, will be provided, leaving only 14 batteries for the reserve to be supplied the following year, independently of 8 batteries which will be manufactured in India—*The London Times.*

NEW FIELD AND HORSE ARTILLERY GUNS.

These guns are still considered to be in the experimental stage, and some of the following particulars as to weights, etc., may be amended. The horse-artillery gun is to be known as the 13-pounder, although the projectile weighs 12½ pounds, and the field-artillery gun is known as the 18-pounder, although the projectile weighs 18½ pounds.

Particulars.	13-pounder.	18-pounder.
Muzzle velocity	1,658 foot-seconds.	1,610 foot-seconds.
Caliber	3 inches	3.3 inches.
Weight	672 pounds	1,008 pounds.
Breech mechanism	Swinging block	Swinging block.
Rifling:		
Grooves—number	18	18.
Twist	Uniform	Uniform.
Firing mechanism	Percussion	Percussion.
Approximate weight of gun and carriage	2,028 pounds	2,663 pounds.
Approximate weight of carriage limber	1,344 pounds	1,655 pounds.
Approximate weight behind traces	3,372 pounds	4,318 pounds.
Number of rounds in carriage limber	24	24.
Approximate weight of wagon (filled)	1,729 pounds	2,170 pounds.
Approximate weight of wagon limber (filled)	1,623 pounds	2,060 pounds.
Approximate weight behind traces	3,352 pounds	4,230 pounds.
Number of rounds in wagon limber	38	38.
Number of rounds in wagon	38	38.
Height to axis of gun from ground	3 feet 0.86 inch	3 feet 0.86 inch.
Wheels:		
Track	5 feet 2 inches	5 feet 2 inches.
Height	4 feet 8 inches	4 feet 8 inches.
Weight of projectile (filled and fused)	12¼ pounds	18¼ pounds.
Ammunition	Fixed and fitted with percussion primer.	Fixed and fitted with percussion primer.

—*M. I. D. 1174–c.*

TEST OF AUTOMATIC RIFLES.

The unsatisfactory results of the tests of automatic rifles at Bisley last summer has increased the interest in the new Rexer automatic machine gun, which weighs only 17½ pounds, including the iron rest from which it is fired. It has been subjected to a thorough test at the School of Musketry at Hythe.—*M. I. D. 1174–a.*

SURVEYS.

The disadvantages that officers experienced in the South African war, owing to the absence of reliable maps, impressed upon the people of Great Britain and the colonies the necessity for instituting surveys throughout the British Empire. As maps that are good enough for military purposes will satisfy the wants of those who are interested in the sale of lands in the colonies and their development generally, the colonies were urged to make liberal appropriations for this work. As the British Empire consists of about 11,000,000 square miles of territory, and as it will cost about $10 per square mile to make a survey that will satisfy the military and civil requirements, it is not expected that all this terri-

tory will be surveyed in the near future. The home Government is mainly interested in establishing a uniform system of survey throughout the Empire, and in getting the work outlined so that those districts that are most apt to be theaters of military operations, and those districts that are being rapidly developed, will be the first surveyed.—*M. I. D. 1174–a.*

MECHANICAL TRACTION.

An official war office trial of the Diplock Pedrail tractor took place on the 8th instant at Aldershot, among the officers present being Capt. R. K. Bagnall-Wild, secretary of the mechanical transport committee at the war office; Col. J. C. Oughterson, director of supplies and transport; Col. F. W. B. Landon, C. B., commanding army service corps, and Col. J. L. B. Templer, superintendent balloon factory. A piece of heavy ground near Claycart Bottom was chosen for the trials, and a number of ordinary steam sappers were pitted against the new tractor, which drew a load weighing about 5 tons through a gully and up a steep sandy hill. The pedal extremities of the driving wheels seemed well adapted to the loose surface and made the journey with ease, while most of the other machines failed to accomplish it. The trials, therefore, may be considered satisfactory when compared with other engines of about the same motive power.—*The Broad Arrow.*

MANEUVERS 1904.

The main interest in this year's maneuvers was centered in the combined operations of the army and navy, and especially in the disembarkation and the reembarkation at Clacton.

Whenever the British soldier is sent against an enemy of Britain, it is the duty of the sailor to carry him across the sea and to land him on the hostile shore above high-water mark. To do this economically and efficiently it is necessary that the two services shall be trained to work harmoniously together. As this fact has been evident to Englishmen for some generations, and as they have had more experience than other people in working out the problems involved in com-

bined operations, it was expected that everything would be done in a most workman-like manner. This expectation and the increasing desire for knowledge concerning these matters on the part of those nations that have recently added to their foreign possessions, and have enlarged their navies, caused some of the foreign observers to give almost too much prominence to the disembarkation and reembarkation, and to look upon the land operations as having no other purpose than to heighten the value of these undertakings by producing conditions similar to those that might arise in actual war.

The respective responsibilities of the British army and navy when engaged in combined operations are as follows:

RESPONSIBILITY OF THE NAVY.

In combined naval and military operations the navy provide:

(*a*) The necessary transport for the force.

(*b*) Protection for the force while at sea.

(*c*) Food for the troops while at sea, unless special arrangements are made to the contrary.

(*d*) The means of putting the force on shore.

(*e*) Protection during the disembarkation against interference from the enemy's fleet.

Once afloat the arrangements are all in the hands of the senior naval officer, but he should work in close conjunction with the senior military officer, who will inform him of the sequence in which he wishes the troops to be disembarked. Once disembarked the troops again come under military command.

The navy should be prepared to cover the landing with the fire of its ships, and should, therefore, take up positions as near the shore as is consistent with their safety.

RESPONSIBILITY OF THE ARMY.

It is the duty of the military authorities:

(1) To fully state their requirements, and to specify the sequence in which they wish the embarkation to be carried

out, notifying the date and hour of arrival of the troops at the places selected by the naval authorities.

(2) To keep the Admiralty informed of all arrangements that have already been made, and of all changes in the numbers or composition of the force.

(3) To deliver men, horses, guns, transport, stores, etc., at the port of embarkation when the Admiralty has notified that the transports are ready to receive them.

(4) To take care that the sequence of dispatch corresponds with the sequence of requirements on shore.

(5) To keep units and their regimental transports, as far as possible, together.

(6) To see that a responsible officer of the department concerned travels on each ship which conveys stores, so that he can superintend the disembarkation and custody of the stores on shore.

The embarkation at Southampton was carried on under war office, not naval, orders. The exact composition of the force to be transported was known long beforehand, and each of the 10 transports had been specially prepared for carrying the units assigned to it, and as all these transports could be berthed alongside the pier, and as an embarkation staff of experienced officers and noncommissioned officers had been sent to Southampton to superintend the embarkation, the presumption is that there was no hitch in this part of the programme.

The first real test of the completeness of the preparations came when the disembarkation began at Clacton. The expedition of the blue force was intended to show what measures should be taken in order to carry out successfully a sudden and unexpected attack on a hostile coast at a point where there is no harbor. It may be assumed that the intelligence department of the army and navy would have considerable information concerning that portion of the coast where the landing was to be made, but it would necessarily be incomplete and it would need to be supplemented by reconnoissance.

But all of the precautions that should have been taken under the circumstances were not taken. The first parties to come ashore were the beach parties from the navy, but

they came unarmed and without escort, just as they would have done had the coast been a friendly one. As soon as these parties had prepared landing stages, troops were dispatched from the various ships, but in leaving the ships and approaching the shore there was no concert of action. As soon as the boats of any ship were filled with men a tug picked them up and started to tow them ashore without waiting until the detachments from the other ships were ready; moreover, there was no pulling parties of sailors in some of the boats containing soldiers, and had one of these detachments, proceeding in this independent way, been attacked from shore the detachments from the other ships could not have supported it properly, and its own boats could not have formed line and approached the shore under control of experienced oarsmen.

The horses first brought ashore should have had their equipments on them, but they did not have, although some that were landed later in the day did have.

Instructions had been given that in loading the transports, units should not be separated from their horses and transport, and that things required first upon landing should be put on last and landed first. These instructions were carried out in the main, but it was noticed that some of the typewriting machines came ashore in the first boats.

Material for the construction of landing stages had been prepared beforehand, and, as a result, the stages were made ready in a very short time. They were of various designs, much latitude having been given the young officers who had been charged with the preparation of the material. Rafts, gun carriages, etc., were utilized for this purpose.

The navy furnished heavy details to assist the crews of the transports to work the winches, etc., and for the beaching parties, but it is doubtful if they could have spared so many men had the landing been opposed. Some of these parties were in charge of mere boys, but they were used to responsibility and to the exercise of authority, and under their direction the work proceeded in a businesslike manner. There may have been many shortcomings, but there were not many that were patent to us landsmen, especially as we were not permitted to go aboard the transports and could only observe the shore end of the undertaking.

There were 54 horse boats utilized, and each of these could carry 10 horses or 2 field guns and limbers or two 4-wheel vehicles, but these did not prove to be sufficient for a rapid disembarkation. In loading these with horses the process was as follows:

Three men entered the boat first; then the 10 horses, with the kits for men and horses, were lowered into the boat, followed by the remaining 7 men.

To load a horse boat required, on an average, during daytime about 25 minutes and at night only a little more.

Scene at landing.

Each derrick could handle about 6 vehicles per hour, so it required a little less time to load a boat with wagons than with horses.

The pontoons were lashed to their wagons and lowered over the ship's side and then towed ashore. In order to get these pontoon wagons, the field guns, and the heavier vehicles ashore, strong details were required to man the drag ropes, and for this purpose the naval details were supplemented by details from the army.

A schedule had been arranged showing the number of

men, horses, guns, and vehicles to be landed each hour from each ship, also indicating the units from which they should be drawn and the character of boat, whether horse or rowboat, that would be used to transport them. It was not expected that this schedule could be carried out to the letter, but it would serve as a guide and was to be followed as closely as possible. According to this programme, the disembarkation should have been completed in 17 hours, but it required 27 hours and was not then complete, as some wagons were left on the ships owing to the sea becoming too rough for them

Landing stage.

to be landed. It could not be done in schedule time for a number of reasons:

It took more than the calculated time for the steam launch to make the round trip from the ship to the shore and back owing to the amount of time required both at the ship and shore end of the line to assemble the boats and to get under way.

There were 24 steam launches, but they were not worked to advantage. They, as well as the other boats, were assigned to particular ships, and they often lay idle at the

ship's side waiting for the boats which they were serving to be loaded, while at the neighboring ship loaded boats lay waiting to be towed ashore. Had there been some central directing authority on the fleet to whom the movements of these boats had been reported, he could have assigned them to duty where they were most needed and a considerable saving of time would have resulted.

A military landing staff on shore to serve as a medium of communication between the beach masters and the military authorities and to relieve the marine officers of the duty of directing the troops on landing to their places of assembly would have been an improvement.

The horse boat.

The fleet was organized into two divisions and there were two divisions of troops, but the first division of the fleet did not carry the first division of troops, and some misunderstanding arose between the army and navy over these terms.

Before the disembarkation was completed the sea had become pretty rough, and this and other circumstances caused some damage: One horse had his leg broken, 2 loaded wagons were sunk, and 18 of the horse boats were damaged

to such an extent that they could not be used at the reembarkation. Notwithstanding this shortage of boats it was estimated that the entire command, less the tents and the wagons that carried them, could have been reembarked in 48 hours.

These tents and wagons are left out of the calculations because on service conditions they would certainly have been abandoned. Some of the mounted troops returned to their stations overland.

As above stated, the reembarkation was carried out under peace conditions.

The horse boat loaded with stores.

One fact, a very important fact, was very prominent throughout the operations, and that was that a spirit of mutual good will existed between the members of the two services.

It was the duty of the sailor to land the soldier above high-water mark, but the soldier did not for that reason become a mere helpless onlooker. In fact, he vied with the sailor, and with no little success (especially during the reembarkation), in doing those things that are the special

function of the seafaring man. Each man was anxious to play the part of the "handy man." The sailor man, who had spent most of his life at sea tried to convince his solider friend that the thing he understood better than all other things was how to handle a horse, and on the other hand one might have concluded from the suggestions which the soldier gave the sailors that the only men who thoroughly understood the mysterious influence of winds and tides on things afloat were the men from Aldershot.

UMPIRES.

There were about 42 umpires with the 18,000 troops engaged, and they were selected men. Their duties were very comprehensive, for they represented all that lies between the unrealities of peace maneuvers and the realities of war. Not only did they render decisions as between the contending forces, but they reported upon the service of protection, the method of occupying camps, bivouacs, cantonments, and all administrative arrangements connected therewith. Confidential reports were made to the chief of the general staff by the chief umpire and the senior umpires as to the way in which their subordinates performed these important duties.

In the "Notes for the guidance of umpires" it is stated that "umpires should place themselves between units rather than with them, and that they should ascertain at all stages of the fight not only what the dispositions are in the case of the force to which they were attached, but also what the enemy is intending to do.

"They should be ready to afford both forces such assistance and information as would be derived in war from the flight of bullets and projectiles; thus a commander should be informed that he is being fired at from a certain direction. which fact he might be unaware of merely because he heard shots in that neighborhood."

Troops were seldom ruled out of action, but were frequently checked in their advance for a time by the decision of the umpire or were ordered to retire for a certain distance. The umpires of opposing forces frequently conferred with each other, and consequently the decisions rendered were

made with a full knowledge of the situation. In the absence of umpires the officers of opposing forces met and usually had little difficulty in reaching an agreement such as the umpires would have reached had they been present.

THE SOLDIER AND HIS EQUIPMENT.

The enlisted man did his part well. All the noncommissioned officers and many of the privates had several years' service to their credit, and this maneuver business was no new thing to them, nor did it seem to be to the many very

On the firing line.

young men in the ranks. There was no shouting of orders; each member of a group took his cue from the group leader and, as a rule, carried out his spoken order or signal quickly and intelligently. In the presence of the enemy, whether advancing or retreating, he made the best possible use of cover, and in this and many other ways gave evidence of careful training and much experience in field work.

His uniform and equipment are fully indicated in the Instruction for Fitting and Wearing the Equipment Bandolier, Pattern 1903, just published. In designing the uniform and equipment, comfort, invisibility, and freedom from noise

were considered the main requisites. These have been considered advisable characteristics of the soldier's uniform and equipment for many years in all armies, and it is very remarkable that in some armies the soldier is still decorated with bits of bright metal that serve as reflectors to point him out to his enemy, and that his equipment is so adjusted that he can not march without making a great noise.

THE COMMISSARIAT.

For reasons of economy the navy did not provide food for the troops at sea, but they did provide water and the means of boiling it.

The following daily rations were supplied free to officers and men while aboard ship:

Biscuit	pound	1
Preserved meat (nominal)	do	1
Tea	ounce	½
Sugar	ounces	1½
Condensed milk, sweetened (1 tin for 25 men)	pound	1
Cheese	ounces	3
Lunch biscuits	do	4
Jam	do	4

The forage allowance was as follows:

Oats (less bran issued)	pounds	10
Hay	do	10

If required, 2 pounds of compressed bran may be drawn in lieu of a similar quantity of oats.

The scale of rations for men and horses during the operations in Essex was as follows:

Bread or biscuit	pound	1
Meat, fresh or preserved	do	¾
Bacon	do	¼

GROCERY RATIONS.

Tea	ounce	⅙
Coffee	do	⅓
Sugar	ounces	1½
Sweetened milk (1 tin per 25 men)	pound	1
Salt	ounce	½
Potatoes	ounces	8
Cheese	do	3
Biscuits (lunch ration)	do	4
Wood	pounds	2
Light (for each authorized lantern)	candle	1

FORAGE.

Oats	pounds	12
Hay	do	12

A stoppage of 3d. per day was made against each enlisted man for the grocery ration which, during the maneuver period, was supplied by Government. Ordinarily the Government does not supply this element of the ration, but allows the soldier 3d. per day to procure it from the canteen or elsewhere. It cost the Government more than 3d., but the excess was charged against maneuver fund.

Field bakeries, operated by bakers belonging to the Army Service Corps companies at Aldershot, furnished considerable fresh bread to the troops.

Arrangements were made with contractors to sell beer in cask at a rate not exceeding 1 quart per man per day, to commanding officers, who issued it under strictly controlled regimental arrangements. No beer was sold to individual soldiers or to civilians.

Depots of supply were established at different points in the maneuver area. These depots were neutral, and both red and blue troops drew from them. The supply columns while on the way to the depot for supplies and while returning to their units were neutral. This was not quite like war, but it was necessary for economic reasons.

MEANS OF COMMUNICATION WITH ARMY HEADQUARTERS.

Balloons.—Both the red and blue forces had the services of a balloon section, but it is believed that neither derived much benefit from the balloons.

Telegraph lines.—There were two kinds of military telegraph lines:

(*a*) The air line, which was used by the commanders of forces for communicating with the umpire in chief and director of maneuvers, for intercommunication between detached portions of a force, and also in connection with the supply of troops. The air line was also used to connect each camp with the post-office telegraph lines, the army furnishing the operator for the post-office end of this wire. All air lines were neutral.

(*b*) The ground cable line, which was not neutral.

Signalmen.—Each unit had its quota of signalmen, and constant communication was kept up between the different parts of the unit, and reports were sent in frequently to the commanders of higher units.

Motor cars and motor cycles.—There were 25 motor cars for conveying members of the directing and umpire staff and foreign attachés, and there were about 35 motor cyclists who were employed on messenger duty.

These were all drawn from the Volunteer Motor Corps, and they rendered excellent service. This corps consists of 160 men owning motor cars and 40 men owning motor cycles. Each member of the corps is liable to be called out for 10 days' duty during the year, and he must be on duty that number of days to get his efficiency rating. He is allowed 30s. a day and petrol for his car while on duty.

EXPERIMENTAL EQUIPMENT.

Among the experimental equipment tried during the maneuvers was the following:

Rubber tires, the method of fixing them to service wheels.

Brake and drag shoes for the same.

Three kinds of waterproof tents.

Various kinds of hopples and linking straps.

A cavalry bit.

Two patterns of stirrups.

Waterproof ground sheets.

Limbered wagon for first line transport.

In addition to the above, the various types of traction engines which were used should be considered as in an experimental stage; with the good roads existing in Essex there is no doubt that the use of these mechanically propelled vehicles was economical. Mechanical transport units have been organized as a part of the Army Service Corps, and considerable attention is being given to the development of this species of transport. The Government report on traction trials held at Aldershot in September and October, 1903, has been forwarded.

An incident that occurred at Southampton just previous

to the embarcation of the Aldershot command added considerably to the interest in the question of securing animals while on service. About 600 horses belonging to the cavalry and artillery units were fastened by a short rope, one end of which was attached to the pastern of the foreleg and the other to a heavy picket pin. In the early hours of the morning one of these horses, which had been seriously injured, was shot, by order of the veterinarian, without being removed from the lines. The other horses, although accustomed to firing, became frightened, and within a few minutes nearly the entire 600 had drawn their picket pins and were running in all directions panic stricken. It was 10 days or more before all of them were recovered. Eight of them had to be killed on account of severe injuries and about 30 others were so badly injured that they are no longer fit for military service. It was necessary to send other troops to the maneuvers to replace these units. This mode of fastening had been found sufficient when on active service after the horses had become pretty well worn, but it evidently will not do so long as they are in such condition as they were at the time of this occurrence.—*M. I. D. 797.*

ENGLISH RADIOTELEGRAPHY.

According to orders given by the Admiralty, all the English men-of-war, with the exception of the admiral's ships, have given up their radiotelegraphic apparatus. It is believed in England that this step has been taken because as the war ships generally sail in groups it is sufficient to have one of the ships of each division provided with wireless telegraph apparatus.

This decision of the Admiralty has been greatly criticised; it has been observed that one or two ships might be separated from the rest in the accomplishment of a special task assigned them, or that the ships might have to travel separately in the night, or so many other emergencies might arise in which it would be well to have the ships in radiotelegraphic communication with one another.

All the cruisers will, however, keep their apparatus, and

a special type is being experimented with for use on torpedo destroyers.

A few years ago an attempt at radiotelegraphic signaling was made on a torpedo destroyer, but the results, on account of the vibration and other causes characteristic of this style of boat, proved so unsatisfactory that the experiments were abandoned.

We now hear that Lieutenant Ryan, of the *Panther*, has been for the last year experimenting on board the torpedo destroyers under his command, with relays and receivers invented by him to counteract the effect of the vibrations and other disturbing causes coming from the boat. It is said that he has succeeded perfectly in receiving and transmitting communications even at a distance of 30 or 40 miles with an aerial wire fixed to the top of the mast of the destroyer and at twice the distance by means of a kite.

The Admiralty has granted a sum for the development of these experiments by placing the apparatus on other torpedo destroyers.

If the experiments give good results, the exploring capacity of the destroyers will be greatly increased, as the new apparatus will enable them to transmit information as the cruisers do now, and not compel them to consume their limited amount of coal by coming each time within signaling distance.—*Esercito Italiano.*

REORGANIZATION OF BRITISH FLEET.

The new scheme of organization of the British fleet has effectively illustrated the advantages attached to the policy of building in large classes. The French squadrons at sea, like those of Italy, Austria, and in some measure Russia and Japan, comprise heterogeneous collections of ships with few points of resemblance. British policy has been to work out periodically the best design of battle ship, cruiser, gunboat, or torpedo craft, and, after careful model experiments, to embody that design in from 6 to 9 ships. Of late battle ships have been built on the principle of a double squadron of 8 ships; consequently, in arranging the distribution of the fleets at sea, the British Admiralty has been able to place 8

ships of identical speed and ranges of action in the Atlantic fleet, 8 smaller and less powerful sister ships in the Mediterranean, and when the whole of the *King Edward VII* class of 16,350 tons have been passed into the Atlantic fleet (based on Gibraltar), Admiral Sir Arthur Wilson, the commander in chief of the Channel fleet (based on the home ports), will have under his control the 6 battle ships of the *Duncan* class, of 14,000 tons; the 2 ex-Chilian ships, *Swiftsure* and *Triumph*, resembling in character the *Duncan*, in being, like them, of high speed, and 4 of the 8 ships of the *Majestic* class. By the time the reorganization is complete the Admiralty will, therefore, have 8 *King Edward VII's* in the Atlantic fleet; 8 *Bulwarks*, of 15,000 tons, in the Mediterranean fleet, and 12 battle ships in the Channel fleet, embracing two squadrons with a trial speed of 19 knots or more, and one heavier squadron of 17 knots.

The same attempt to obtain homogeneity is being made with reference to the cruiser squadrons, of which one is attached to each three of these battle ship forces. In the case of the First and Second Cruiser Squadrons the idea has been to assign the *Good Hope* and the *Drake* for service as flagships to Rear-Admiral E. S. Poe and Prince Louis of Battenberg, the two rear-admirals commanding, and to make up the total of 6 cruisers in each case by assigning 5 "county" cruisers to each command. In the Mediterranean the cruiser squadron is still in a state of transition, and must await reorganization until the Admiralty have some new ships at their disposal. In the Far East 5 battle ships are serving, 4 of these consisting of vessels of the *Canopus* type, ships specially designed to pass with ease through the Suez Canal, and the total is completed by the *Centurion*, an older ship, which has lately been entirely reconstructed and provided with a more modern armament. The same principle of homogeneity has also been carried out in the organization of the fleet in commission in reserve.—*Cassier's Magazine.*

ENGLAND—INDIA.

THE INDIAN ARMY, 1904–5.

Sanctioned establishment of the army in India, 1904–5.

	European army.		Native army.				Total.
			Europeans.		Natives.		
	Officers.	Warrant noncommissioned officers and men.	Commissioned officers.	Noncommissioned officers and men.	Commissioned officers.	Noncommissioned officers and men.	
Artillery: [a]							
Officers	548		53				
Noncommissioned officers, trumpeters, buglers, and others		1,075			33		
Rank and file		13,043				7,010	
	548	14,118	53		33	7,010	21,762
Cavalry: [b]							
Officers	261		497				
Noncommissioned officers, etc		585			679		
Rank and file		4,797				23,975	
	261	5,382	497		679	23,975	30,794
Engineers, submarine mining, and sappers: [c]							
Officers	249		77		74		
Rank and file				206		4,733	
	249		77	206	74	4,733	5,339
Infantry: [d]							
Officers	1,508		1,683		2,135		
Noncommissioned officers, etc		3,346		3		114,082	
Rank and file		48,892					
	1,508	52,238	1,683	3	2,135	114,082	171,649
Miscellaneous officers, etc.:							
Invalid and veteran establishments, etc	6	3					
Officers of Indian army (late staff corps)	1,159						
General officers unemployed	14						
	1,179	3					1,182
Total	3,745	71,741	2,310	209	2,921	149,800	230,726

[a] The artillery is composed of 11 batteries Royal Horse Artillery, 5 ammunition columns Royal Horse Artillery, 44 batteries Royal Field Artillery, 8 ammunition columns Royal Field Artillery, 8 mountain batteries Royal Garrison Artillery, 26 companies Royal Garrison Artillery, 10 native mountain batteries, and 1 company Frontier Garrison Artillery (native).

[b] 9 regiments European, 42 regiments native.

[c] Includes 26 companies sappers and miners, 1 balloon section, 1 pontoon section, 1 mounted detachment, 4 telegraph sections, 2 printing sections, and 2 photolitho sections.

[d] 52 battalions European, 132 battalions native.

In our European force in India, mustering 74,657, we have 59,300 bayonets and sabers, while the splendid native army of India can muster 140,000 bayonets and sabers. We therefore have to calculate the number of field guns we have for this grand total of 340,000 bayonets and sabers of the British field army. At home and elsewhere than in India we can muster 738 field guns and howitzers. In India we have 336 field guns and howitzers, giving a total of 1,074 guns of our horse and field artillery. Consequently we have only 3¼ field guns for every 1,000 bayonets and sabers, and not 4½, as Mr. Arnold-Forster states. Even if we add the guns of our 19 mountain batteries, including one in Egypt, and the guns of 6 heavy batteries at home and 6 in India, we only get 186 extra guns, or a grand total of 1,260 guns for our field army of 340,000 bayonets and sabers, which works out at 3⅔ guns per 1,000. It may be here noted that the German Parliament has recently voted funds for an increase of both field and heavy guns, since it is fully recognized from the experiences in the Far East that artillery can do something more than produce a moral effect, which as been the popular belief for many years. We see it reported from Tokyo that at the battle of Mukden the Russians had 300,800 bayonets and 26,700 sabers, with 1,368 guns, which gives over 4 guns of all natures per 1,000 bayonets and sabers.—*The Broad Arrow.*

The actual strength of the Indian army, as a rule, does not differ much from the establishment, and the above figures may be taken to represent the number of men now serving with the colors. Besides these troops account must be taken of the volunteers and reserves, aggregating about 85,000, and bringing the grand total up to nearly a third of a million.

But in considering the military resources of India consideration must also be given to the Imperial Service Troops of the native states.

Exclusive of Afghanistan, Nepal, and Bhutan (which may be considered within the sphere of British influence, though independent) the native states cover an area of 700,000 square miles, with a population of 62,000,000, and maintain troops to the number of 100,000. Of these, about

16,000 are "Imperial Service Troops"—that is, troops that would be at the disposal of the Indian government in case India were attacked. These troops were organized about fifteen years ago, while Lord Dufferin was viceroy of India and Sir Mortimer Durand was foreign secretary. They are inspected by Indian army officers and their organization conforms to that of the native Indian army. "It is hoped," said Lord Dufferin, in explaining the relation of these forces to the Indian government and to the governing authority in the native states, "It is hoped that in this way, while each force will remain a purely state force, recruited in the territories of its chief and serving within them, the troops composing it will be gradually made so efficient as to enable the Imperial Government to use them as part of its available resources to meet any external dangers."

This force consists of the following: Mountain artillery, 300; cavalry, 7,435; infantry, 8,150; sappers, 508; transport carts, 1,700, and a camel baggage train of 1,068 camels.

This is not a very large force, but the fact that it is maintained by the ruling princes of the native states goes far to assure their cooperation in the event of an attack by Russia or other foreign power.

It has long been the wish of army officers in India to see India become "self-contained" as regards military equipment, arms, ammunition, etc., and under the influence of Lord Curzon and Lord Kitchener this will soon be realized.

Factories already exist or are being built as follows:

Gun-carriage factories at Fatehgarh, Bombay, and Madras, with a new central factory (which will eventually absorb all of these) at Jubbulpore.

Cordite and gun cotton at Wellington.

Ammunition factory at Kirkee and at Dum-Dum.

Rifle factory and rolling mills at Ishapur.

Foundry and shell factory, Cossipore.

Gun factory, Cossipore.

Harness and saddlery factory at Cawnpore.

Harness and saddlery workshops at Madras.

Horseshoes and horseshoe nails at Cawnpore.

Clothing is supplied by contractors.

These establishments are not far enough advanced to meet

the immediate demand for new guns for the artillery; consequently 18 batteries of field artillery and 3 batteries of horse artillery are to be equipped with the new quick-firing guns made in England; but it is expected that the Indian factories will be able to make the remaining guns required for this rearmament. Seventy-one thousand five hundred and seventy-four rifles of the new pattern are being manufactured in England for the British troops in India, but both these guns and rifles are paid for by India. It is expected that manufacture will commence in the gun-carriage factory at Jubbulpore, the rolling mills at Ishapore, and the gun factory at Cossipore before the middle of next year.

Not only is it proposed to make the Indian army independent of Great Britain in the matter of guns, rifles, ammunition, and material, but also in the matter of education and training of the personnel. Two hundred thousand rupees ($65,000) have been appropriated for erecting the necessary buildings at Quetta, and while they are being constructed temporary quarters will be provided at Poona. No agreement has yet been reached with the Home Government as to the credit that will be attached to graduation at the Staff College at Quetta, but it is the desire of the Indian government that it shall be considered equivalent to graduation at the Staff College at Camberley, England.

There is a school of musketry at each of the following places: Deolali, Changla Gali, and Parchmarhi. There is to be a school of cookery at Poona.

There is a mounted infantry school at Bangalore.

India has a population of about 200,000,000, exclusive of the native states, and has an army, as indicated above, of 330,000 men, including volunteers, reserves, and Imperial Service Troops, and for the maintenance and improvement of this army about 35,000,000 rupees ($11,600,000) is expended annually.

The primary duty of the army, as stated above, is to secure tranquillity in India and to defend India against Russia, but it has been pretty well established in recent years that the native Indian troops are willing to serve abroad and that when sent on foreign service they will render a pretty good account of themselves. It may also be taken for

granted that the British Government will not hesitate in the future to utilize their services against any country with whom she may be at war.

These considerations are causing the world at large to take an increased interest in the reorganization and development of this army, which is now being accomplished under the guidance of that experienced soldier and organizer, Lord Kitchener.

The increasing capacity of the military factories has been referred to and some reference to the more important changes in organization and training should be made.

In time of peace the tendency in every army is to hedge the officer about with so many requirements, commonly known as "red tape," that to avoid the difficulties that result from taking the initiative he refers pretty much everything to his superior, and he in turn to his superior, until almost everything, both great and small, is carried up to the war office. Under this process the Indian army regulations had assumed great proportions and one of Lord Kitchener's first acts was to arrange for a complete revision and simplification of them. These new regulations have been published.

An order, No. 246, covering the subject of higher training and military education of officers, the distribution of staff duties, and the responsibility of general and staff officers, was published April 11, 1904.

Competitions between regiments and battalions in the British service in all matters of sport have been in vogue for a very long time, and competitions having for their purpose the determination of the relative military proficiency of units in musketry and artillery fire, have been held in the past. A system of marking has now been introduced in India to determine the relative efficiency of all battalions of infantry. The allotment of marks makes a grand total of 500, of which 200 is given for attack and defense.

General officers commanding districts determine according to this system of marking which is the best British and Indian battalion in their districts. Lieutenant-generals in a like manner determine which are the best-trained battalions in their commands. A board of officers is then appointed

from army headquarters to determine which is the best-trained battalion in all India.

The order publishing the regulations under which these contests are held has not yet been received, but the original memorandum sent out by Lord Kitchener to the lieutenant-generals for comment and opinion provided for the most practical test for the determination of efficiency. If this has not been modified in the new order, a battalion will be called upon, in the test for marching, to march 15 miles under service conditions preparatory to carrying out an attack with ball ammunition. Each man will carry 100 rounds, of which one-fifth will be expended, and another 20 rounds per man will be carried on mules and issued while the attack is taking place.

Scouting and outpost work day and night will give officers and men a chance of showing their proficiency, not only in reconnoitering and patrolling, but in signaling and transmission of reports, while the knowledge of duties and initiative shown by all ranks will be rewarded.

As stated above, 200 of the 500 marks are allotted for attack and defense. The whole subject of attack and defense is divided up into several headings, among which may be mentioned capacity of subordinate command, fire discipline and control, fire attack, construction of cover and the use of the spade in attack and defense, the adoption of formation suitable to the ground and to the fire, the actual assault and rallying, counter attacks, etc.

Marks ranging from 20 to 40 will be given for duties in bivouacs, night operations, transport duties, and miscellaneous duties, in the last named being included knotting, lashing, and bridging, bayonet fighting, gymnastics, and physical drill.

The night operations will include a retirement of at least 10 miles followed by a pursuing force. For every man that falls out on the 15-mile march to the attack or on the night march of 10 miles one mark will be deducted. Deductions will also be made for men of any unit who are unable to participate in these severe tests on account of diseases not contracted in the line of duty.

In the competition between the batteries and artillery brigades, the instructions for practice issued annually by the British war office are taken as a guide, but these are supplemented by special instructions issued from the headquarters of the Indian army. Among the new practice problems this year in India is the following:

"A small body of infantry attacks artillery in position, the time taken in covering the distance from 1,500 to 1,200 yards to be noted; the infantry then withdraw to a flank to watch the practice of the artillery on surprise targets to represent infantry, which remain up to the same length of time that the infantry took in advancing those 300 yards; the effect of the artillery fire is noted at the termination of this interval, and places are now changed, dummies replace the personnel and guns of the battery, and the real infantry men, less the number of casualties caused by the artillery fire, now fire on the battery for the same length of time as the battery was firing. Artillery versus artillery can be similarly treated, and much valuable instruction obtained in selecting positions and concealing guns as much as possible."

The increasing physical and mental effort that this modern method of training for war makes on the enlisted man is having its effect. The life of the common soldier in time of peace is no longer one of comparative ease, and the number of men who are willing to enlist for the mere love of soldiering, regardless of the pay, is diminishing, and countries like Great Britain and India, where service is voluntary, may soon be forced to adopt compulsory service or make even still greater additions to the pay of the enlisted man. This strenuous life in time of peace is also affecting the officers' corps, and in the future Great Britain will not find so many of the sons of rich men who are willing to pay from $1,000 to $2,000 a year for the privilege of holding a commission.

This does not affect the officers of the Indian army so much as that of the British army, because the scale of living is lower in India than it is at home; more of the officers are poor men and the pay is better.—M. I. D. 2865.

THE FEDERATED MALAY STATES.

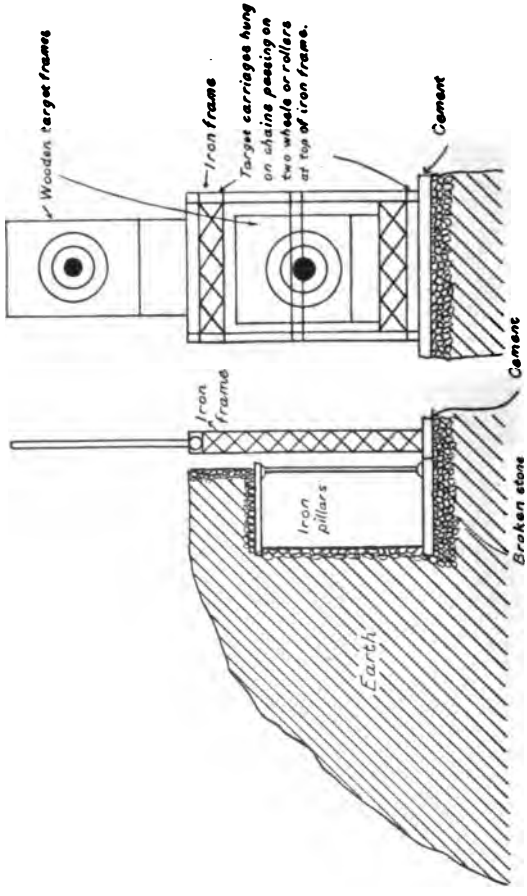
MILITARY FORCES.

The military force of the Federated Malay States consists of a regiment called the Malay States Guides, to which is attached an artillery corps. It is composed almost entirely of Sikhs and Pathans. The latter are sometimes spoken of as the Mohammedan Sikhs, and do not wear beards. Both Sikhs and Pathans are splendid-looking men, and their profession is soldiering. They are very submissive to discipline, careful and proud of all the forms and ceremonies. They are said, however, to lack initative, and although fight bravely when well led, still the moment they are deprived of their white leaders their value in a large measure is gone. The field and most of the company officers are those of lower grade from the British army. There are a number of native officers. The regiment is about 1,000 strong, quartered as follows: Two companies at Kuala Lumpur, State of Selangor, and 6 companies and headquarters at Taiping, in the State of Perak. The lieutenant-colonel commanding is a very energetic and active man, and one of great ability. The adjutant, Capt. E. I. M. Barrett, of the Lancaster Fusileers, is an especially energetic and capable officer. They are uniformed with handsome turbans, and even their khaki uniform is striking. For dress occasions they have the British red coat. For the field their equipment is very simple. They use a khaki-cloth haversack, which has the advantage of being cheap, and perhaps is durable enough for their service. They have for fatigue work a light-blue flannel shirt without a collar and a handsome green turban. The British resident of each of the four native States has a guard furnished from this regiment, principally for display. The Sultan and many of the native chiefs are received with guards of honor whenever they visit the resident or the State capital.

The target range at Taiping is one of the best I have ever seen. The long-distance firing is up to 1,200 yards; the butts are against a mountain. The figure shows a cross section; the overhanging cover enables the space between the

butt and the target to be small, thus preventing the loss of many otherwise good shots.

The targets were on an upright iron frame, and had vertical motion, working on chains over wheels at the top. These frames of stands permitted three sizes of targets to be used.



The butt was floored with cement; the cover was upheld by iron posts and iron rails. Like everything else in the British and Dutch colonies, the targets and the butts were nicely painted or whitewashed. One of the main advantages of the range was that it approached service conditions, the jungle on either side, the rough ground, and shooting over a road

which crosses the range at 500 yards. There were many disappearing targets very simply arranged, some on the open ground, some imitation men behind breastworks or shelter.

Two men shoot alternately at one stand of target.

When a shot is fired the target fired at is lowered and looked over by the markers. The position of the hit is indicated by a disk placed over the corresponding location in the other target which is up, a square piece of black cardboard is then placed over the actual hit, by means of a brass hook, and when that target is again raised the firer can see the result of his last shot thus indicated.

A gun with silhouette cannoneers, a track running across a portion of the range, on which an imitation armored car, with a gun and crew, offered fine moving target. Another target arrangement represented a column of troops marching down a hill toward the shots, was suspended on a wire, and consisted of a number of groups of silhouette figures arranged as in a column of troops. There was a painted canvas on a frame to represent the front of a house, with a window and a door which could be opened and shut, presenting the figure of a soldier in the window and in the doorway. A very good simple moving target was the silhouette of a soldier creeping, with his gun carried about the knees. This was on a light frame about 4 feet square and was carried on a pole like the signs which one sees carried about in the streets. A man carrying this moves up and down behind the butt. The target appearing above the latter makes a very good moving objective.

FRANCE.

THE TWO-YEAR SERVICE.

The army commission of the Senate engaged in advising upon the plan of a law touching the introduction of a two-year service period has agreed to the exceptions designated by War Minister Berteaux, in opposition to the views of the deputies, and deemed by him essential for the maintenance and replacement of a sufficiently strong and trustworthy officers' corps. Accordingly there are excepted from the two-year service obligation the cadets of the war school St. Cyr and those students of the Ecole Polytechnique who devote themselves to an officer's career. They have to spend only one military year at the front before entrance into these institutions. The same is true for the students of the Ecole Centrale and Normale, the high schools of forestry, public architecture and mining, and of the scholars of the Ecole Polytechnique who enter the civil administration, except that these classes must serve a second year as sublieutenants of reserves at the close of their studies, provided they have shown their capabilities as reserve officers in the examinations held at the end of their first year of service.

An article newly introduced into the plan by the Senate commission contains the following exceptions: Those under obligations for military service who have attended none of the specified high schools, but who will strive for qualification and the grade of sublieutenant of reserves may at the conclusion of the first service year be admitted to the examinations. By passing this examination they attain the position of aspirant for a commission. Then after they have completed their instruction in another six months of service, they can be nominated as sublieutenants of reserves; and in this capacity they are absolved from the balance of their two years of service. Similar regulations obtain for students of medicine and pharmacy.

On the other hand, the Senate commission has declared

for the two-year service period in the Algerian and Tunis contingents, although the governor-general, Jonnart, had recommended the maintenance of the one-year service period. According to the wish of the war minister, the law is to go into effect one year from its adoption. If this occurred on April 1, 1905, the new regulations would obtain from April 1, 1906, being retroactive upon the 1905 yearly class.—*The International Review.*

MEDICAL STATISTICS.

The report respecting the medical statistics of the French army of the interior, during the year 1902, just published, is based upon a total strength of 485,207 officers, noncommissioned officers, and soliders, and upon a force present for duty of 429,038 soldiers of all categories.

The total number of sick, "a la chambre," has been 435,296, representing a proportion of 1,058[a] per thousand of the men present; 160,431 men, or 389[a] per thousand, have been treated in the regimental infirmaries, and 99,568, or 205[a] per thousand have entered the hospitals.

The total number of deaths amounts to 2,062, or 4.24 per thousand, showing a perceptible lessening over preceding years (4.98 per thousand in 1898, 5.43 per thousand in 1899, and 5.73 per thousand in 1900). Out of 1,000 deaths, bronchitis not tubercular caused 2, bronchial-pneumonia 63, pneumonia 52, tuberculosis 205, pleurisy 30, congestion and pulmonary apoplexy 15, erysipelas 3, diphtheria 12, rheumatism 9, measles 23, cerebro-spinal meningitis 16, primitive meningitis not tubercular 19, dysentery 16, grippe 96, heart diseases 9, marsh fever 1, scarlatina 41, appendicitis, typhlitis, and perityphlitis 13, nephritis 22, accidents and traumatic lesions 75, typhoid fever 123, suicide 47.[b]

The examining boards having appeared less rigorous in 1904 than during the two preceding years, the minister of war, aiming to improve the sanitary condition of the army, and also to restore the total strength to the budgetary pro-

[a] These figures per thousand appear to be inexact. According to my own reckoning, 1,058 should be 1,015, 389 should be 369, and 205 should be 228 (Tr.).

[b] The total would only be 892 (Tr.).

visions, has just directed that all the men now incorporated, and especially the recruits of the new contingent, shall be subjected to a careful examination and observation by the surgeons of the corps, for the purpose of eliminating, temporarily or finally, all those who, for any cause whatever, shall not exhibit sufficient strength of endurance.—*M. I. D., 562.*

THE FRENCH SOLDIER'S PACK.

Over a year ago General Pendezec, chief of the general staff, upon its demand made the following statement to the Chamber of Deputies concerning the soldier's pack: "Since the memory of man the question of lightening the soldier's pack has occupied military committees. In recent years several orders have brought the weight down to 18 pounds. This weight the minister of war still finds excessive, and everybody, above all the war board, agrees with him in thinking this weight on the back incompatible with the exactions of modern fighting. At every moment the infantry soldier is obliged to drop flat on the ground and fire in this position, and we find that with a pack on his shoulders it is difficult and sometimes impossible for the soldier to use his gun.

"The minister consulted the war board on this subject, and these officers sought last year to reduce the number of articles carried by the soldier, while at the same time increasing the rations always borne on his person; for it is acknowledged that two days' rations are no longer enough for the man to carry into battle, since this may last a number of days and the man must live and he can't fall back.

"The minister also gave formal orders to the president of the infantry board to make the study of this question of first importance, in order to see not only how the pack can be lightened, but how it may be divided into two parts, the one carrying rations only and the other, which could be left behind in battle, comprising clothing, etc."

Since General Pendezec's statement the infantry board has recommended the following:

To be carried on the soldier:

1. A knapsack of flexible material (instead of the present box), containing only indispensable articles, and whose

weight complete must not exceed 7.7 pounds. These indispensable articles are considered to be one shirt, one mess tin, and the emergency rations.

2. The cartridges and intrenching tool to be carried on the waist belt.

To be carried in wagons:

1. The company wagon to carry neither cartridges nor tools; it becomes a baggage wagon for the men's extra clothing. Each man's clothing will be rolled in a separate bundle and put in a linen haversack bearing his name. This bundle will contain a jersey instead of the shell jacket, as at present; a pair of soft canvas slippers instead of the present barrack shoe; one brush, and the soldier's handbook. This company wagon will also carry the officers' baggage, part of the third day's rations, and a supply of shoes.

2. The large squad mess tins are abolished.

3. The cartridges formerly carried in the company wagon will be united in a battalion caisson. For this purpose the caissons of the old 90-millimeter gun can be utilized.

4. The wagon of the cantinière and the regimental clothing wagon are abolished.

The reduction in weight thus effected amounts to 11 pounds per man.

The above has been accepted in principle, it would seem, by the war department, and the financial part of the project is now being studied out.—*M. I. D., 781–b.*

REGULAR AND PERIODIC WEIGHING OF MEN IN THE RANKS.

Modern researches having proved that the frequently repeated verification of the weight of men will furnish to the military surgeons very useful indications for the diagnosis of certain affections, particularly tuberculosis, a departmental direction of October 31 last directs that *all* the men in the ranks, including the noncommissioned officers, shall be subjected to regular weighings, which shall occur once a month. The weighings shall occur more frequently for the sickly and for all those whom the surgeon shall consider it advisable to subject to special observation. They

25880—No. III—05 M——6

will attend to the same men at the same stated time of the day.

Individual descriptive cards made out by the companies, squadrons, or batteries and collected in a pasteboard box in alphabetical order shall be delivered to the chief surgeon on duty with the corps.

There will be entered on the face of each card a description of the man as well as mention of the diseases or wounds which have occasioned his removal to the infirmary, the hospital, or sent him on convalescent leave.

The back of the card is intended for the registry of the weights. It is made out in square form analogous to temperature reports.

The heavy horizontal lines correspond to kilograms—5 above and 5 below the weight of the man at the time of his incorporation. The intervals between the heavy lines are divided by four thin lines, corresponding to double hectograms.

The vertical spaces serve for indicating the months.

The monthly weights are noted by a point, and the points are afterwards joined by a line as in the case of the thermic curves.

The sanitary descriptive cards are preserved with the records of the infirmary for five years at least after the discharge of the men.—*Bulletin de la Pusse.*

THE DISTRIBUTION OF FRENCH FIELD ARTILLERY.

When by the decree of July 12, 1904, the two artillery regiments in each army corps were assigned one to each infantry division in peace there arose the question, How will the artillery be distributed in case of mobilization? Formerly one artillery regiment was designed to furnish artillery for the two mobilized infantry divisions, while one regiment was to serve as corps artillery. From the July assignment of both regiments to infantry divisions it was assumed that this formation, abolishing corps artillery, would obtain under war conditions. Indeed, in the great maneuvers northwest of Paris in the fall of 1904, conducted by General Hagrou, the entire artillery of both corps was distributed along the infantry brigades, and the divisional connection

was done away with. From a definite report of the Armeè territoriale it now clearly appears that in case of war the corps artillery will continue to exist and will be formed in case of mobilization by the giving up of both regiments. Each infantry division retains, as formerly, six batteries. This turning over of artillery has been newly regulated in the preparations for mobilization. It is expressly stated by the war minister that the decree of July 12, 1904, assigning the two regiments to the divisions, was only an experiment and not a final measure. The formerly used designations of one regiment as the " Divisional artillery regiment " and of the other as the " Corps artillery regiment " are not to be abolished, and in the printed orders of mobilization are not to be replaced.—*The International Review.*

FIELD HOWITZERS.

The Neue Militärische Blätter announces that the French field artillery will be provided with howitzers of 10.5 centimeters. The organ mentioned remarks that, " The experiences of the Russo-Japanese war demonstrated the need of this engine of war in the attack of positions provided with bombproof shelters, and that the field howitzers of 12 centimeters and of 15.5 centimeters, with which the heavy artillery of the army is now equipped, are not sufficiently mobile to follow the troops under all circumstances and reach desired points seasonably. It is probable that the three batteries of light field howitzers will be attached to each army corps."—*M. I. D., 563.*

ASSIGNMENT OF FIELD ARTILLERY TO DIVISIONS.

By application of the order of July 12, 1904, which attaches in time of peace the regiments of field artillery to divisions of infantry, a provisional instruction of November 14, 1904, assigns to that division of the army corps bearing the lowest number the regiment of divisional artillery, and to the other division the old regiment of corps artillery. Four divisions contain only one-half of a regiment (six batteries), for while the French organization numbers 40 divisions and 40 regiments of field artillery, two of these regi-

ments, constituting the nineteenth brigade, are assigned to the nineteenth corps, stationed in Africa.

The same instruction defines as follows the prerogatives and duties of the division and brigade generals commanding the artillery of the army corps.

The general of division is responsible for the state of preparation for war of the artillery placed under his orders. He attends the inspections which he judges expedient, *assists as much as possible at the target practice, and completes contingently the critical examination of the general commanding artillery.* He decides on the list for promotion, receives the daily report as well as the routine papers prescribed by the regulations, investigates service matters, and in a word exercises the functions of a chief immediately over the artillery regiment of his division.

The general commanding the artillery of the army corps assumes the part of permanent inspector by delegation from the commander of the army corps. He maintains the uniform application of the principles of the regulations in the two regiments of the arm, receives the programmes of instruction established by the chiefs of corps, programmes which he immediately transmits with his advice to the division commander, who notes upon them his observations before they are submitted for the approval of the commander of the army corps; he looks after the execution of these programmes, verifies the results obtained, and forwards to the commander of the army corps, as often as it appears expedient or he is ordered to do so, an abstract report upon the observations made by him, with his recommendations. This report is transmitted through the medium of the division commander, who also notes upon it his own observations, if any appear necessary.

The general assigned to command the artillery always aids at the target practice and sees that all the regular requirements and the orders promulgated by the commander of the army corps for the execution of the firing programmes are complied with. He is responsible for the remount service and the preparation for the mobilization of the element pertaining to the artillery, which do not enter into the organization of the division; he entirely controls the placing of the

artillery of the army corps and directs the experiments or investigations in reference to matériel.

The recommendations for official promotion are transmitted to the division commander by the general assigned to command the artillery, who, from the techincal point of view, rates them by means of remarks and numbers indicating preference.

A general classification of all the artillery officers of the army corps is also established by the general assigned to command the artillery. But this document, merely consultative, is designed only for the information of the army corps commander.

SUBDIVISIONAL RECRUITING.[a]

Until now the young men of the quota, excepting the exempts rendering only one year of service, were incorporated into corps stationed outside the district subdivision of their residence and, at the time of their transition into the reserve, that is, at the expiration of their third year of service, they were assigned to the units of the same arm in the district subdivision of their residence.

For this reason the mobilized units include a large proportion of reservists who have received military instruction in other corps and are therefore unacquainted with their chiefs and unacquainted with each other.

The reasons which have led to this system, among others, in order to remove the young soldier from his home, having lost a great part of their value through the ever-increasing development of ways of communication, which has unified the national life, the minister of war has directed that young men shall in the future perform their military service in the district subdivision of their residence; that is to say, that they will be incorporated in the line where they would be asssigned as reservists.

The new manner of recruiting by district subdivision or reserve subdivision, says the circular of October 3, 1904, will render the amalgamation and fusion of the elements

[a] French territory is divided into 19 army-corps districts, each district into 8 regimental subdivisions; 2 districts comprise only 4 subdivisions and 1 of them has 9. There are in all 145 subdivisions.

constituting the peace strength with the men of the reserves easier and more beneficial; the mobilized units will gain in cohesion and value and the operations of mobilization will become easier and more rapid.

The units of the border troops will receive for reenforcements more men than the subdivisions of the interior, and the contingent of the great urban masses, notably of Paris and Lyons, will continue to be incorporated in corps stationed outside of these masses.

DEPOT OF DISABLED AT THE FALL MANEUVERS.

At the last fall maneuvers of the northwest General Hagron, director, installed in each army corps and in the rear of the line of battle a depot for the disabled.

This depot which, conformably to the progress of the operations, could be removed and transported from one locality to another in order to be kept constantly in connection with the troops, was under the orders of the chief of squadron commanding the baggage train of the army corps.

The chiefs of corps sent to this depot the sick and disabled considered capable of being returned to duty after a few days' rest. These men were cared for at the depot of disabled by the doctor assigned to it, and most of them were subjected to exercises in closed ranks, in the manual of arms, and also to certain employments and fatigue duties.

The results which General Hagron had anticipated were not generally long delayed; the men preferred to rejoin their corps, perceiving that all shirking had become impossible, and voluntarily, after getting rested, requested discharge from the depot of disabled.

Only men really sick or wounded were sent to their garrisons. If the depot of disabled had not been properly managed, all the men sent there would have remained in the rear until the end of the maneuvers and the units of troops would have been to that extent reduced in numbers.

Thanks to the initiative of General Hagron, some regiments which had reckoned on about 700 reservists out of an effective of 1,750 men, returned after the fifteen days' maneuvers with their complete force and without having

needed to make any transfer of sick men.—*La France Militaire.*

MILITARY CYCLISTS.

Military cyclists are divided into two categories: (1) Bicycle dispatch riders; (2) cyclist units.

1. Dispatch riders.—The dispatch riders (in time of peace two and on mobilization five per regiment of infantry) are charged with the transmission of orders, reports, and communications of every nature between the staffs, regiments, and services. (Regulation of April 5, 1895.)

In order to provide the corps with a more practical and less burdensome machine than the model actually furnished by the artillery, the machines assigned to dispatch riders will henceforth be of the folding type in use among the cyclist companies.

The only interesting modification is the possible increase, when preparing the tables of war effectives, in the number of riders assigned to the infantry regiment in the field.

Conscription on mobilization will, moreover, furnish resources more than sufficient to satisfy these demands.

2. Cyclist units.—The first attempts at the organization of military cyclists were made in 1896. From 1896 to 1900 several units were constitued by way of experiment in order to determine (1) the organization of these units; (2) their clothing; (3) their equipment; (4) their camp equipage; (5) their armament; (6) the bicycle best fitted for war service; (7) the employment of the units in battle.

The experiments have led to the adoption of the present organization as a cyclist company of the sixth company in each of the following battalions of chasseurs:

Twentieth Army Corps: Second Battalion of Chasseurs, at Lunéville; Fourth Battalion of Chasseurs, at Saint-Nicolas-du-Port.

Sixth Army Corps: Twenty-fifth Battalion of Chasseurs, at Saint-Mihiel; Eighteenth battalion of Chasseurs, at Stenay; Ninth Battalion of Chasseurs, at Longwy.

Company No. 6 has been organized as a cyclist unit with the following composition:

One hundred and twenty men (175 on mobilization), 4

officers, 9 noncommissioned officers, 12 corporals, 4 buglers, 95 soldiers (of whom 4 were mechanics).

These cyclist companies are under the orders of their respective chiefs of corps (i. e., commissioned officers of the chasseur battalion).

They use the folding bicycle of the Société Nationale de la Bicyclette Plianta (improved Gérard system).

Their rôle in the field is defined by the regulation of September 10, 1904, which also determines the instruction to be given them in time of peace. The cyclist units must be considered as fractions of infantry capable of moving with great rapidity, but partly tied to the march front.

They must be employed, especially in defensive combat, to retain a point of support or an important position until the arrival of the infantry. They may be called upon to act as a support to artillery and cavalry; they are less suited than the cavalry to reconnoitering.

Their flank being difficult to defend on the march, their isolated employment is exceptional. It is rather in conjunction with other arms that they are capable of rendering great service.

Nevertheless, however important they may be, their utility must not be exaggerated. Such is the almost unanimous opinion of the experimenters.

In any case, should it become necessary to form other cyclist companies, they must not be grouped in battalions, owing to the vulnerability and weight of such a unit, the length of the column, and the difficulties of command.

It must not be forgotten, moreover, that the qualities necessary in cyclists call for picked men, and that any increase in this direction will be made to the detriment of the infantry regiments.—*M. I. D., 1189–a.*

MILITARY BUDGET FOR 1905.

The budget for 1905 fixes the ordinary expenditures at 746,786,215 francs, as against 743,749,581 francs appropriated in 1904, and the extraordinary expenditures at 27,367,150 francs, appropriated in 1904. The total amount of both expenditures is therefore 774,153,365 francs for 1905, as against 773,792,581 francs appropriated in 1904. The net

increase in the amount appropriated for 1905 over the amount appropriated in 1904 is thus 360,784 francs.

These estimates are for the support of the metropolitan troops stationed in France, Algeria, and Tunis, of the colonial troops stationed in France or in French colonies, and of the native troops stationed in French colonies. The war department budget contains items for military purposes amounting only to 679,329,916 francs, but the budget of the minister of colonies contains also items for the same purposes amounting to 93,405,154 francs, and the naval budget includes expenses for artillery amounting to 1,418,295 francs for the support of 210 officers and 1,083 men of the colonial artillery. Total, as above, 774,153,365.

ORDINARY EXPENDITURES.

Among the ordinary expenditures the items which follow are of interest:

	Francs.
General staff and staff services	12,959,620
Various departments and special staffs (personnel of contrôle service, intendance department, artillery and engineer's staff)	24,687,335
Military schools (personnel and materiel)	10,942,438
Pay of infantry	152,988,812
Pay of administration troops	5,478,162
Pay of cavalry	28,350,419
Pay of artillery	37,945,376
Pay of engineers	5,114,264
Pay of train	3,616,392
Departmental gendarmerie	33,639,082
Republican guard	4,741,020
Reserve and territorial army	455,575
Artillery establishments (purchase and manufacture of material and ammunition)	27,871,070
Secret expenditures	530,000

EXTRAORDINARY EXPENDITURES.

	Francs.
Siege train	540,000
Field equipment	2,168,000
Armament of garrisons	700,000
Armament of coasts	2,980,000
Small arms	2,000,000
Ammunition	900,000
Experiments (artillery)	500,000

	Francs.
Building and machinery (artillery)	690,000
Barracks	3,530,000
Drill and firing grounds	4,120,000
Fortifications	6,000,000
Engineer stores	480,000
Defense of Chzerta	1,862,000
Establishments (intendance)	90,000
Establishments (medical)	345,000
Material of cyclists	37,150
Railroads and geographical service	425,000
Total	27,367,150

The effective strength which served as a basis for the budget for 1905 differs as follows from that of 1904:

	Active army.		Colonial troops.		Gendarmerie and Republican guard.		Horses for officers and men.
	Officers.	Men.	Officers.	Men.	Officers.	Men.	
1904	28,990	520,830	1,791	25,781	683	24,034	143,973
1905	28,927	520,805	1,853	25,724	679	24,047	143,311
Increase			62			13	
Decrease	63	25		57	4		662
	−88		+5		−9		−662

The following tables show the distribution of staff, military school, and arms of the service:

Generals of division	120
Generals of brigade	234
Officers of the general staff service	950
Officers of the contrôle service	52
Intendance officers	1,460
Special artillery staff	2,203
Special engineer staff (officers, adjutants)	1,343
Total	6,362

Personnel hors cadres, not classed in troop units.

Recruiting, penitentiaries, native affairs	908
Medical personnel	1,321
Administrative personnel	1,560
Others	70
Total of the personnel outside of the staffs, schools, and troops units	3,859

Military schools.

	Officers.	Men.	Total.
Polytechnic school, special military school (St. Cyr), and all the schools of application, 18 in number	183	2,837	3,020

Distribution of the various arms of the service.

	Officers.	Men.	Total.
INFANTRY.			
168 regiments of infantry of the line of 4 battalions each, less 272 companies	11,157	267,907	279,064
30 battalions of rifles of 6 companies less 2 companies	996	28,306	29,302
4 regiments of zouaves of 5 battalions of 4 companies plus 2 depot companies	418	13,025	13,443
5 battalions of light infantry of Africa	165	7,605	7,770
4 companies of disciplinary fusiliers	16	1,000	1,016
2 foreign regiments of 6 battalions of 4 companies each, plus 2 depot companies	204	10,840	11,050
4 regiments of Algerian sharpshooters of 6 battalions of 4 companies each, plus 1 depot company	504	20,187	20,691
12 regiments colonial infantry of 3 battalions of 4 companies each stationed in France	1,164	20,390	21,554
Colonial troops stationed in the French colonies	371	14,383	14,754
Native troops stationed in the French colonies	830	33,097	33,927
Total infantry	15,825	416,746	432,571
ADMINISTRATION TROOPS.			
22 sections of staff and recruiting secretaries	.....	2,419	2,419
26 sections of military administrative clerks and workmen	.....	7,564	7,564
26 sections of military hospital attendants	.....	4,829	4,829
In the French colonies:			
Staff secretaries	.....	135	135
Military administrative clerks and workmen	.....	855	855
Military hospital attendants	.....	673	673
Total administrative troops	.....	16,475	16,475
3 companies of Saharian troops	3	1,010	1,013
CAVALRY.			
79 regiments of 5 squadrons each (13 cuirassiers, 31 of dragoons, 21 of rifles, and 14 of hussars)	3,476	52,341	55,817
6 regiments of African rifles of 5 squadrons each	258	4,722	4,980
8 companies of remount cavalry	27	2,850	2,877
4 regiments of spahis of 5 squadrons each	164	3,287	3,451
Remount service: 1 squadron of Saharian spahis—native cavalry in the French colonies	21	515	536
Total cavalry	3,946	63,715	67,661
ARTILLERY.			
18 battalions of foot artillery	540	14,324	14,864
40 regiments of field artillery	3,170	47,665	50,835
Mountain batteries	62	1,877	1,939
African batteries	64	3,350	3,414
Musicians of artillery schools	19	741	760
10 companies of workmen	50	3,140	3,190
3 companies of artificers	12	303	315
3 regiments of colonial artillery of 12 batteries (4 field, 2 mountain, 6 foot)	230	4,780	5,010
Musicians of colonial artillery	.....	.....	.....
Others (colonial troops)	51	10	61
5 companies of workmen (colonial troops)	23	658	681

Distribution of the various arms of the service—Continued.

	Officers.	Men.	Total.
ARTILLERY—continued.			
1 company of artificers (colonial troops)	5	138	143
Colonial artillery in the French colonies	227	6,738	6,965
Total artillery	4,453	83,724	88,177
Engineers	596	14,000	14,596
Train	412	9,700	10,112
RECAPITULATION.			
Infantry and Saharian troops	15,828	417,756	433,586
Administration troops		16,475	16,475
Cavalry	3,946	63,715	67,661
Artillery	4,453	83,724	88,177
Engineers	596	14,000	14,596
Train	412	9,700	10,112
Grand total	25,235	605,370	630,605

NOTE.—There are also included in the budget the gendarmerie and the Garde Républicaine. The former consists of 26 legions in France (592 officers and 20,998 men) and a Tunisian detachment (4 officers and 139 men). The latter consists of 3 battalions of infantry of 4 companies each and 4 squadrons of cavalry (total strength, 83 officers and 2,910 men).

—M. I. D 1175–e.

A NEW COAST-DEFENSE GUN.

According to Le Temps, a new French coast-defense gun has recently been experimented with at Havre. It is distinguished by the simplicity of its mechanism and by the rapidity and accuracy of its fire. It is loaded automatically by the force of its recoil, and three men suffice to work it. Its rapidity of fire is 3 shots a minute, viz, four times greater than that of the 270 perfected howitzer and twelve times greater than that of the 190 gun.

The new 240 coast gun costs 500,000 francs, weighs about 10 tons, and throws a projectile of 163 kilograms with an initial velocity of 500 meters to an extreme range of 8,500 meters.—*United Service Magazine.*

SECRET FUNDS.

There are four ministries in the French Government which are regularly supplied with secret funds by the appropriation acts. These are the war and navy departments, the foreign affairs and the interior departments.

The following table shows the amounts appropriated in 1889 and 1903 and the trend of the appropriation:

	1889.	1903.
	Francs.	*Francs.*
War	500,000	530,000
Navy	65,000	100,000
Interior	1,600,000	1,200,000
Foreign affairs	700,000	1,000,000

These funds can be drawn on and spent by the minister concerned without other authority or control than that of the President of the Republic.

The war department uses this annual fund of about $100,000 in paying spies and counter spies, buying military secrets, sending secret agents abroad, etc.

GRAND MANEUVERS OF 1904.

The term " Grand maneuvers " in France is used to designate the maneuvers of a body of troops larger than one army corps. Every regiment in the French army passes from a week to a month in brigade, division, or garrison maneuvers every summer, and from the point of view of the men and of the regimental officers more instruction is had from these than from the maneuvers on a grander scale. The grand maneuvers, comprising the marching, feeding, and fighting of two or more army corps, is the practical school of instruction for the generals who would command the armies of France in case of war, for their staffs, and for the central administrative services.

In 1904, following the example set last year, there were two " grand maneuvers," those in the west, under the direction of General Hagron, and those in the east, under General Brugère. The latter officer is well known in America from the visit he made there as the head of the Rochambeau mission, in 1902. He is the vice-president of the superior council of war, and as such the officer designated in time of peace to command the principal army or armies of France in case of war. He usually commands one of the grand maneuvers each year, besides supervising most of the maneuver work of the whole army during the summer. In this way he fits himself in the most practical fashion for the supreme task which would fall to him upon the outbreak of hostilities.

It was the maneuvers of the east, directed by General Brugère, which the military attachés were invited to attend this year. The forces assembled consisted of two complete army corps (each comprising three divisions of infantry) and two independent divisions of cavalry of four regiments each. The seat of operations was between Dijon and Belfort, near the German frontier, over ground covered by the operations of Garibaldi's little army against the Germans in the Franco-Prussian war.

The effective of the troops taking part in the maneuvers was as follows:

	Men.	Horses.
September 4	53,543	10,764
September 8	53,170	10,723
September 13	52,783	10,500

It will thus be seen that in 9 days the casualties were 760 men and 264 horses, or 1.4 per cent for the men and 2.4 per cent for the horses.

The embarkation commenced September 16 at 6.30 a. m. and was finished at 4.50 p. m. the same day. The Twenty-seventh Brigade was sent off in 5 trains, the Twenty-eighth and a battalion of chasseurs in 5 trains, the Eighty-first and Eighty-second Brigades plus 1 battalion in 9 trains, corps headquarters in 1 train; in all, 20 trains.

The work connected with embarking the troops and stores is all performed under the direction of army officers of the railway staff, and constitutes an excellent instruction for them in this regard. The regular working of the railroad is not interfered with, and while this restriction would be disregarded in war time, it makes the problem more difficult and therefore doubtless more instructive.

The tendency to prolong the duration of the approach and the combat and thus make them more in accord with the realities of modern war was remarked upon in both 1902 and 1903. This year the resemblance to actual conditions was pushed still further. The operations of September 8 to 13, inclusive, constituted one continuous maneuver; the operations of September 8 were the continuation of those of September 7; similarly for the operations of September 14 and 15.

The week's continuous fighting south of Liao-Yang had just finished when the French maneuvers began, and many remarked upon the evident intention of General Brugère to reproduce some of the features of the campaign about which all were talking. Each day necessarily comprised some fighting—the seizing of a position by one or the other side, the clash of advance guards or outposts, an occasional night attack, etc., but for the most part each commanding general, having a well-defined object in view, was forced to maneuver and fight several days in succession before he was in a position to say that he had succeeded or failed.

The abundant employment of outflanking and turning movements did not preclude at all the direct attack in front. Indeed, the French maintain that in carrying out the elementary adage of "fix the enemy and then outmaneuver him," the fixing process can only be successfully performed by troops which attack, and which attack fiercely. Otherwise the "fixing" is a farce, and the antagonist can readily guess what is being done.

The influence in France of what may be called the English school—the people who were deeply disturbed in their tactical ideas by the south African war and its methods—has largely spent its force, and now the tacticians who hold that a hammer is always necessary for driving a nail are extracting from the accounts received from Manchuria a revenge upon the enthusiasts for extended lines. In any case it may be said generally that the French army believes in its present regulations for the conduct of the attack. The system recently so brilliantly defended and commended by General Langlois, while accepting every change, advantage, or trick offered by the latest weapons, still exacts a formation sufficient in depth to constitute a piercing instrument, and maintains that thin lines of fire, however well directed, can not drive an enemy from his positions and win a battle, while on the other hand they offer dangerous opportunity to a vigorous counterstroke.

The troops carry in their haversacks throughout the maneuvers two days' preserved rations. Certain days are fixed for the consumption of these rations. Thus on the 11th and 15th of September no fresh rations were issued, but the men were ordered to consume on each of these days one of the

rations of preserved meat and hard bread carried till that time in the haversacks.

CAVALRY.

The cavalry attack against infantry is considered always possible if appropriate formations are used. The principles to follow are: Attack always in single rank; attack at the same moment every fraction of infantry which can cover with its fire the ground charged over; attack in successive echelons at 200 or 300 yards distance, either arranged checkerwise or one following the other.

On September 12, for example, toward the close of the day, after a furious cannonade and a long-sustained infantry fire, the infantry assaulted the Mausolèe hill, while the positions to the east—infantry and artillery—were charged all at the same moment by two divisions of cavalry sweeping across the valley in brigade echelons. No one can say whether such a charge would have succeeded or not, for there was no real way of estimating the effect of the preceding fire action upon the defenders. The ground lent itself perfectly to the work, the flanks were secure, and the cavalryman maintains, with much reason on his side, that while the first echelons would have suffered terribly the succeeding ones would have finished victorious.

Remarks during previous years as to fighting on foot remain unmodified. The French cavalryman does not like it and rarely does it, and then not in the way we think rational. I have seen squadrons gallop furiously across an open space to within 400 yards of unshaken infantry, dismount and open fire, while the horses had no protection whatever, or had to be led across the open to find it.

ARTILLERY.

There is little to add to previous remarks on the artillery. The French are more and more satisfied with the new gun, which now after seven years is no longer new to them. The horse artillery is still armed with the field artillery gun for the corps batteries of horse, which is too heavy, or with the old 80-millimeter gun for the cavalry division batteries, which is not quick firing.

The use of indirect fire is not so prevalent at maneuvers as it would be in war, for many evident reasons, one of which is that the battery must be seen by the other side and by the umpires to have its work count.

The Vial reflector was used for the first time to show the antagonist and the umpires what was being fired at. Remark was made last year as to the crude system of guidons then employed to this effect. The reflector is in the main similar to a heliograph. When there is no sun a lamp is used to throw a ray in the mirror. The square box contains parallel blades for limiting the field of the flash.

One of these reflectors is (in principle) attached to each group of three batteries. When the battery comes into action the reflector is set up and its flash is directed upon the troops which are being fired at. This signal must be observed and respected. After a few blank cartridges are fired the long and short flashes of the reflector indicate the number and nature of the shots, and, if need be, the kind of troops—infantry, cavalry, etc.—fired on. This saves ammunition and gives a fairly accurate idea to the enemy and to the umpires of the shots that might be expected to come from the guns. The limited field of the flash prevents its being seen by, say, more than one group of opposing artillery.

The cannoneers of field artillery carry carbines which, when the guns are in action, are leaned against the hubs of the wheels near at hand. The mounted men carry revolvers. The artillery officers all agree that the carbines are no bother, and may often come in usefully, especially against cavalry charging as foragers or coming up suddenly on a flank. These officers all thought the pistol more dangerous to friend than foe, and believe it has no place in a battery.

The mounted men carry their kit on the horse, as in the cavalry. The cannoneers have a regular infantry kit, which is made up and strapped to the backs of the seats on the limber chests.

INFANTRY.

Some of the infantry troops carried the new experimental knapsack. It is soft instead of being rigid, as the old one is; it weighs less than half of the old one, and carries only

the bare necessities. The rest of the man's kit is made in a package and carried in the company wagon.

The whistle seemed to be used less and less, signals to men on the firing line being usually made with the hand or transmitted from man to man. In column or when massed and not under fire the whistle is used to command attention; in action officers maintain it can not be heard when most needed, and, above all, the men can not tell whose whistle they hear. Therefore officers and noncommissioned officers lead their men in person, the movements of the troop conforming to those of its leader. This is especially the case in the cavalry, where commands of any kind are rarely heard. It is particularly noticeable at French maneuvers—the absence of noise and the shouting of commands.

The infantry did very little entrenching, but the engineer companies were given a good deal of this work.

Before executing a counter attack, infantry defending a position usually took off their packs before moving out to charge.

There was as little firing in the prone position as during previous years, and no creeping forward individually in attack.

The director of maneuvers had for the use of his headquarters two large and powerful automobiles and four light carriages. The latter were quite up to going across fields, which they often did. Each corps headquarters had one heavy and one light machine. Chauffeurs received the regulation allowance for their (own) machines, i. e., one-half cent per kilometer per horsepower, 17 cents per day per horsepower, and 50 cents commutation per day for privates and 60 cents for noncommissioned officers.

No balloon was used except a signal balloon.

There were four umpires, all major-generals.

MACHINE GUNS.

Seven battalions of chasseurs à pied had each one machine-gun detachment with it. While official information as to the assignment of machine guns to infantry troops is withheld, it is probable that the organization observed for these detachments will be the one definitely adopted for

infantry battalions in general and that each battalion will eventually be given one machine-gun detachment.

Each detachment is armed with two Hotchkiss machine guns.

The personnel and material are divided into two sections—the shooting section and the combat train. The composition of the combat train is not definitely fixed, but it will be composed of either one or two caissons drawn by one horse (or mule) each.

The shooting section consists of 2 guns with 2 extra barrels, 14 ammunition chests, 1 chest of tools, and extra parts.

Animals.—One saddle animal for the detachment commander (lieutenant); 8 pack mules—2 for the gun, 6 for the ammunition chests. It is likely that 1 lead mule will be added.

Personnel.—One mounted lieutenant, 1 sergeant, 3 corporals, 1 mechanic, 9 men (2 pointers, 2 loaders, 4 carriers, and 1 orderly), 8 (or 9 mule drivers. All of the men carry carbines.

Each pack mule is accompanied by a mule driver, who generally leads the animal by the halter.

The gun is the regular Hotchkiss machine gun, mounted on a tripod, using infantry ammunition. The pack saddle has been especially devised for this gun. No lashings are used, all being slung to the saddle by hooks. The system of packing and of conducting the mule train seems to me inferior to our own.

EXTRACTS FROM THE SPECIAL INSTRUCTIONS FOR THE MANEUVERS OF 1904.

Each day, immediately after the close of the maneuver, the critique will be held by the director. Umpires, generals commanding the two sides, division commanders, and their staffs, must be present to hear the critique and to receive instructions for the following day; other officers may attend, but are not obliged to.

At night all soldiers must be in their cantonments and in the houses where they are lodged by 8.30 p. m. at the latest. Police officers will see that there is no noise before reveille.

Bands will be ordered from time to time to give concerts in the cantonments. The surgeons will see that the food and drink sold to soldiers are of good quality.

The service of security will function as in campaign. To relieve the fatigue of guard duty, however, the outpost reserves, the grand guards, and, when it rains, the small posts, will take such shelter as can be found near their positions. When it is cold, fires can be made. All men on outposts will wear their jackets under the capote. Hostilities will be suspended from 5 to 6 a. m. to enable the outposts to make their coffee and pack up.

The director of maneuvers will alone prescribe night attacks. Only the attacking troops and those immediately defending the position will take part. The outposts attacked will get under arms, but the alarm will not be given farther to the rear than the general reserve of the outposts. In case of success, the assailant will merely occupy the position sufficiently to resist a counter attack.

The themes given out will be as simple as possible, indicating merely the object to be attained and the situation at the beginning of the maneuver. The director reserves the privilege of modifying these themes, even in the middle of the maneuver, in order to create new and unexpected situations. The commanders of opposing sides will have complete liberty of initiative in accomplishing the objects sought. Special effort will be made to bring into play the reserves, the unexpected situations arising in war amply proving the importance of this training.

An intelligent use of cover in marches of approach and in the attack is of the highest importance. This applies especially to troops in the first line. Troops of the second and third lines must not run the risk of delay in coming into action at the right moment. They must therefore be kept in hand in a compact formation. The action must not be precipitated; the artillery must have time to act in a rational fashion and fully prepare the attack.

The director intends to consecrate two or more days to a single maneuver. In this way the operations will be more in accord with reality, time will be given for the correction of mistakes, and troops will be spared the excessive fatigue which results from trying to do too much in one day.

Important and commanding positions of the terrain must be made to play the same rôle they would have on a real field of battle. The attack or defense of such a position generally necessitates the employment of all three arms, or at least of infantry and artillery. Thus a field of battle usually presents several detailed and more or less separate actions, each of which should show the three successive phases of a fight, namely: The engagement of the first line, the preparation of the attack, and the assault. The partial combats delivered for the possession of these supporting points develop gradually and become progressively transformed into a general battle along the whole front.

After taking a position the attacking party must pause and take time to occupy it, re-form the forces, bring up fresh troops, and prepare, if necessary, for another forward movement.

In general, the decisions of umpires will be final. They will not even be modified by the director until the end of the maneuver. The decision of an umpire must be immediately obeyed, whatever orders the troops may have received from their own chiefs. Apart from the ground and the effectives engaged, the umpires will take into consideration the dispositions of each party, the conditions under which the artillery has cooperated on each side, and the rôle played by the cavalry. They will then note the ground won or lost by each side and indicate to the commander of the repulsed troops the place where he can re-form and the moment when he can, under the new conditions, resume the action.—*M. I. D., 797–n, 1904.*

HOSPITAL SERVICE MANEUVERS IN FRANCE.

Interesting medical service exercises took place during the latter part of last month in the territory of the Twelfth Army Corps, in the vicinity of Limoges, those on the 25th, 26th, and 27th being especially worthy of notice.

The programme of the 25th was the following: March of the various hospital corps formations and an engagement in which the service of the first line was developed, including the search for the wounded at night by artificial light.

During the fighting exercises the hospital corps had occa-

sion to make experiments of the greatest interest. An ambulance received the wounded from the battlefield and treated them according to the war sanitary regulations.

A particularly interesting experiment was made at the end of the day—the search for the wounded in the thick chestnut woods, by means of the acetylene lamps that the searchers carried on their hats and in their hands, besides three very strong searchlights which assisted them.

On the 26th a field hospital and an overflow hospital were put in service.

On the 27th convoys of wounded were sent to a railway station, an overflow hospital having been organized there, and finally the wounded were sent to the rear.

Three complete camp hospitals in full regulation array were prepared, and on the 27th they left Limoges for the localities assigned them, where they were met at a certain hour by a convoy of carts and sham wounded.

All the necessary operations having been carried out within the time established, the loaded carriages were transferred to the station of St. Leonard, which was being used as an overflow hospital. Here two trains were awaiting the wounded, who were placed in special cars provided with suspension apparatus; the trains then left for Limoges, where a station infirmary, organized by the Society for the Help of Wounded Soldiers, acted as provisionment during a twenty-five minute stop.—*Italia Militare e Marina.*

NEW SUBMARINES.

According to Le Yacht, the three new French submarines, *Emérande*, *Opale*, and *Rubis*, will be the largest yet constructed. The displacement will be 422 tons; length, 146.5 feet; beam, 12.8 feet. They will have two propellers; the motive power will be gas or vapor on the surface and electricity from accumulators when submerged; the engine will be 600 horsepower, and the speed 12 knots. They will each carry 6 torpedo tubes. They will be more habitable than previous types, and have a larger radius of action.—*United Service Magazine.*

GERMANY.

NEW DETACHMENT OF MACHINE GUNS.

On October 1 the sixteenth detachment of machine guns of 6 pieces was formed from the troops already under arms.

This detachment has been assigned to the Sixteenth Army Corps, which was without one, and actually to the First Battalion of the Sixty-seventh Regiment, which is on garrison duty at Metz.

In the creation of this new detachment of machine guns the gunners have been provided by the infantry, the drivers and the horses by the artillery, and the saddle horses by the cavalry of the Sixteenth Corps.

On the same date, the forces of all the machine-gun detachments were increased by 1 " raffermato " (enlisted man) and 9 soldiers of the levy as drivers.

The cadres of the officers of each detachment are composed of 1 captain, 1 lieutenant, and 2 sublieutenants.—*Italia Militare e Marina.*

GROUPS OF MACHINE GUNS.

It is well known that the German army (if we except the English) is the best supplied of Europe with detachments of machine guns. It possesses already 15 groups of 6 guns completely organized and horsed, constituted into autonomous fighting and administrative units. These groups were all till now attached to regiments of infantry or to battalions of chasseurs.

They do not seem to wish to keep them there. Lieutenant-General Von der Boech, in a recent pamphlet in which he discusses the most useful augmentations to the army to ask of the Reichstag says that it is known that superior authority wishes to have, in the beginning at least, one group of machine guns for each army corps. There would remain eight to be created.

But this is not all. Opinion grows more and more with the authorities that the cavalry divisions, without being stripped of their artillery, which serves a different purpose, would be very advantageously provided with a group of machine guns; this would increase notably their defensive power, above all behind an obstacle, and would replace advantageously, in many cases, an infantry support which in Germany they are loath to attach to cavalry of exploration for fear that it may be only a hindrance.

They begin even to foresee groups of machine guns for the garrisons of fortified places or the divisions of the reserve charged with special missions (defense of the coast, etc.).

Much as the budget of 1904 provides only for the creation of a single group of machine guns, it should not be believed that the Germans will rest there, and one may expect to see created from year to year new groups.

Without placing ourselves on this track following the Germans and without admitting that their solution of the groups of machine guns entirely mounted on carriages or horsed is the best, we believe that one will do well in France not to lose sight of this question and to continue pushing actively the studies now under way on this subject.—*La France Militaire.*

PONTON BOATS.

The folding canvas boats in use in the German cavalry are about to be replaced by a material in sheet steel. The following are some details with regard to the latter:

Instead of 1 six-horse wagon for the folding canvas boat, each cavalry regiment will have 2 four-horse wagons, each of which will carry 2 half boats of sheet steel, 2 trestles, 4 portions of flooring, and the necessary anchors, oars, and ropes. In addition, a supply of explosives will be carried on each wagon. This matériel, according to what it is designed for, is capable of making a roadway of 1 meter for men on foot, of 2 meters for men on horseback, or for bridge 3 meters wide. Trestles and boats are used as supports, the latter either singly as half boats or else joined together, forming an entire boat. A raft supported on 2 whole boats

may be formed from the matériel of a regiment, with a superficial area of 16 square meters.—*United Service Magazine.*

THE NEW "QUINQUENNAT" LAW, 1905–1909.

The following is the text of the bill (No. 502) now before the Reichstag to establish the peace strength of the German army for the five years commencing April 1, 1905:

We, William, by the grace of God, German Emperor, King of Prussia, etc., order in the name of the Empire, after the Federal Council and the Imperial Parliament shall have signified their agreement, the following:

ARTICLE I.

SECTION 1. From April 1, 1905, the strength of the German army on a peace footing will be annually increased until in the course of the fiscal year 1909 it reaches the number of 505,839 privates, lance corporals, and head gunners, at which figure it will be maintained until March 31, 1910. The respective State quotas are as follows:

Prussia, including contingents under Prussian military administration	392,979
Bavaria	55,424
Saxony	37,711
Württemberg	19,725

In so far as Württemberg can not furnish its quota in proportion to its population, the Prussian administration will supplement the Württemberg contingent with the number of recruits necessary to bring it to its peace strength.

The one-year volunteers are not included in the figures given.

Privates filling the positions of noncommissioned officers do not receive their allowances.

SEC. 2. In conjunction with the additions to the peace strength, as stated in section 1, the number of the existing units (Formationen) of organization will be so increased that at the close of the fiscal year 1909 there shall be:

Battalions of infantry	633
Squadrons of cavalry	510
Batteries of field artillery	574

Battalions of foot artillery	40
Battalions of pioneers	29
Battalions of communication troops	12
Battalions of train	23

SEC. 3. The increment in each separate fiscal year, and the distribution of this increment among the various arms of the service, the addition of commissioned officers, surgeons, military officials and noncommissioned officers, will be fixed by the annual imperial budget in accordance with paragraph 1 of this law.

ARTICLE II.

This law shall be applied in Bavaria in conformity with the specific provisions of the Federal agreement of November 23, 1870 (Bundesgesetzbl. 1871, p. 9), under III, section 5, and in Wurttemberg of the military convention of November 21–25, 1870 (Bundesgesetzbl. 1870, p. 658).

REMARKS.

The law of March 25, 1899, fixed the peace strength of the German army at 495,500 men to March 31, 1904. The law of February 22, 1904, extended the same to March 31, 1905. A new law is therefore of necessity from April 1, 1905.

The German Empire will continue also in the future its peaceful policy pursued for more than thirty years. To this end a strong, ready, and efficient army is necessary now as much as ever.

It is not purposed to surpass in number or even to equal all possible adversaries, but it can and must be insisted upon that the German Empire in drafting its male inhabitants for personal service in the defense of the country keeps apace with neighboring powers. This has hitherto not been the case. With the continuous increase of its population Germany has been prevented by financial considerations from carrying out fully the principle of universal conscription, and has been obliged to impose restrictions which have adversely influenced its military strength. France, on the other hand, with especial reference to Germany, has already drafted almost every serviceable man into the army and thus

surpasses Germany in its fighting strength, although its population is nearly twenty millions less. This will possibly be the case to a still greater extent after the introduction of the two-year service term. We must therefore endeavor to insure that the element of power which rests in the number of our population is fully expressed by the number of trained men, inasmuch as in the latter is contained for us always the best guaranty for the continuous maintenance of peace.

This object will be attained gradually by granting the required increase in the peace strength of the army.

This increase will serve the purpose of removing deficiencies and defects in the army organization, which the military administration has been for years endeavoring to remedy and which impede the peace training, delay the transition to a war footing, and in mobilization may lead to disastrous consequences.

Considerations of perfect readiness for war and especially of the need for the protection of our frontiers, have frequently reacted upon the uniform and effective organization of the army. We possess army corps with fewer battalions than batteries, and divisions consisting of infantry and field artillery only, but lacking entirely in cavalry.

The scheme of organization requires in each army corps at least 24 battalions of infantry; in each infantry division at least 12. Such is not the case with 2 army corps in Prussia and with 2 divisions on the frontier.

And further, even in peace, divisions should form firmly organized bodies constituted from all arms. Upon this depends their efficiency in war. In Prussia the thirty-eighth and thirty-ninth divisions have no cavalry. This deficiency has already become for the peace training an actual evil, the mitigation of which, attempted during the maneuvers by transferring cavalry from other organizations, injures other parts of the army and is only a makeshift. In case of war, however, such defective organization leads to disintegration of the units or to the formation of new bodies of doubtful value where permanence is a necessity.

In providing for our cavalry we must go still further. Their comparative small number now forces us to augment

them materially in the event of mobilization. Thus we deteriorate our good regiments. We greatly weaken their organization and military efficiency, with injury to the horse materiél, at a moment when the most nearly perfect state of readiness must be demanded. This hazardous, untenable state can be bettered only by the construction of new cavalry regiments in time of peace.

It is purposed to make them absorb the present squadrons of mounted sharpshooters (Jäger zu Pferde).

The present strength of the foot artillery and pioneers does not satisfy the increased demands made to-day upon these arms in mobilization.

The increase of the telegraph troops by a fourth battalion is also needed urgently if they are to carry out their important duties in war.

Finally, the recruiting depots require some additions to their grants corresponding to the more numerous reserve.

The augmentation of the Bavarian and Saxon contingents is based upon the same consideration.

The measures above set forth compel the increase of the peace strength by 10,339 men. As heretofore, it is necessary to fix the number for a long period (5 years) in order to secure for the development of the army a steady progress toward a set goal. On the other hand, when all the changes of organization shall have been legally sanctioned, these changes may be distributed over several years and appropriations made in the usual way.

The federate governments have determined to introduce, simultaneously with the present bill under discussion, a constitutional amendment definitely establishing the two-year term of active service for foot troops, mounted artillery, and train. The assumptions under which alone so important a procedure can be justified and executed will be explained in detail in the bill embodying the amendment. For the present it suffices to state that the military advantage of the shortened term of service consists only in the training of a larger number of men for war. But the more this mass grows the more numerous must be also the peace cadres, which support it in war, and so much more carefully must

all defects of organization be removed under which suffers the rapid and orderly employment of the bodies to be mobilized.

Additional remarks to Article I, section 1.—The law is to take effect on April 1, 1905. Since, however, on account of the date of enlistment, the new formations (Formationen), etc., can be first introduced only in the autumn of 1905, the existing peace strength will until then remain unchanged. The extension of the law now in force was, however, not possible, because five of the squadrons of mounted sharpshooters specified in Article I, section 3, of this law (proposed) must be formed into a cavalry regiment by the 1st of April, 1905.

The quotas of Prussia, Bavaria, and Saxony in the total peace strength are proportional to their respective populations. The Wurttemberg quota will remain as fixed by the law of March 25, 1899; if it were computed on the basis of population, then it would be diminished from the present legal quota by 256 men, in consequence of the relatively smaller increase of Wurttemberg. In order to avoid such a measure, highly undesirable for military reasons, the corresponding number of recruits shall be drafted into the Wurttemberg contingent from the districts of contingents under Prussian administration.

Section 2.—While the peace strength, under the law of March 25, 1899, amounted to 0.95 per cent of the population of the Empire, it will in future be only 0.90 per cent.

The present formations are to be augmented by 8 battalions of infantry (7 Prussian, 1 Saxon), 9 regiments of cavalry of 5 squadrons each (6 Prussian, 1 Bavarian, 2 Saxon). The numbers include the 17 squadrons of mounted sharpshooters (Jäger zu Pferde) already existing, 2 Prussian battalions of foot artillery of 4 companies each, utilizing the 6 present companies, 3 Prussian battalions of pioneers, 1 Prussian telegraph battalion.

The required supply is obtainable from the surplus of men fit for service without any difficulty.

BERLIN, *November 22, 1904.*

BILL TO AMEND OBLIGATORY MILITARY SERVICE LAW.

The following is the text of the bill, No. 503, now before the Reichstag, to legally establish the term of active military service in general at two years:

We, William, by the grace of God, German Emperor, King of Prussia, etc., order in the name of the Empire, after the Federal Council and the Imperial Parliament shall have signified their agreement, the following:

ARTICLE I.

The following is substituted in place of the first clause of article 59 of the constitution of the German Empire of April 16, 1871 (Bundesgesetzblatt 1871, No. 16):

Every German capable of bearing arms belongs for seven years, as a rule, from the completion of his twentieth to the commencement of his twenty-eighth year, to the standing army, and for the succeeding five years to the first levy of the Landwehr, and thereafter until the 31st of March of that calendar year in which he completes his thirty-ninth year to the second levy of the Landwehr.

Of the seven years in which they belong to the standing army men of the cavalry and horse field artillery are compelled to serve the first three years with the colors without interruption; all others, the first two years.

ARTICLE II.

SECTION 1. In case the army must be strengthened, the men about to be discharged according to the terms of the last clause of Article I can be retained in active service by command of the Emperor. Such retention is counted as an exercise in the sense of the last clause of section 6 of the law of obligatory service of November 9, 1867 (Bundesgesetzbl. 1867, p. 181).

SEC. 2. Such of the foot troops, of the mounted field artillery, and train as have served voluntarily 3 years actively in the standing army, and men of the cavalry and horse artillery who, according to their service obligation, have also

served 3 years therein need serve only 3 years in the first levy of the Landwehr.

SEC. 3. Men of the Landwehr infantry while belonging to the first levy of the Landwehr can be called out twice for exercises in special formations composed of men of the reserve (Beurlaubtenstand) for a period of 8 to 14 days, reckoned from the day of joining.

Landwehr cavalry will not be called out for exercises in time of peace.

The Landwehr men of all other arms exercise to the same extent as the infantry in separate bodies or duly joined to the troops of the line.

ARTICLE III.

SEC. 4. This law goes into effect April 1, 1905.

On the same date are suspended the provisions of section 6, clause 2, and of section 7, clauses 4 and 5, of the law dated November 9, 1867, of obligatory military service, as well as the provisions of Article I of the law dated February 11, 1888, relating to changes in the obligatory military service.

SEC. 5. This law (No. 503) takes effect in Bavaria in accordance with the detailed provisions of the Federal agreement of November 23, 1870 (Bundesgesetzbl. 1871, p. 9), under III, section 5; in Wurttemberg according to the detailed provisions of the military convention of November 21–25, 1870 (Bundesgesetzbl. 1870, p. 658).

REMARKS.

The law of August 3, 1893, regulating the peace strength of the German army provides for the period from October 1, 1893, until March 31, 1899, that during the term of obligatory service in the standing army the men of the cavalry and horse artillery should serve the first three years, and all others the first two years, uninterruptedly with the colors. On the expiration of this law it was ascertained that notwithstanding the shortened period of service of the foot troops, of the mounted artillery, and of the train, the requirements of the service were for the time being satisfied. A final opinion as to the effect of this shortened period upon

the efficiency of the reserve could not then be given. The regulation mentioned was therefore continued in force by the law of March 25, 1899, at first until March 31, 1904, and then extended by the law of February 22, 1904, to March 31, 1905.

The federate governments at the time decided to temporarily introduce the two-year period of service only in anticipation of a number of measures which were considered indispensable partly to lighten the duty with certain arms and partly to advance their training.

The establishment of the fourth battalions was to serve the former purpose, and to a certain degree they afforded the desired help in taking over the training of the one-year volunteers, the burden of those on detached service, and the exercises of the reserve. Weighty reasons led to the discontinuation of the fourth battalions and to their combination into complete units. Although the organization of the army in general gained thereby, yet the measure meant the loss of important means, regarded as essential by the legislative bodies, to meet the difficulties accruing, especially in the infantry, from the two-year term of service. Nothing was done to compensate for this. The evil consequences have not failed to show themselves. They appear in an activity prejudicial to the physical and mental strength of the training personnel (commissioned and noncommissioned officers), and have led to regrettable occurrences unknown to the same extent during the three-year period of service. The training, the treatment of the men, and the relation between superior and subordinate have suffered in consequence. The continuation of this state of affairs can not be tolerated. Considerations of a political and military nature forbid returning to the three-year period of service, all the more as to-day the federated governments believe, although only from experience gained in time of peace, that the two-year period of service suffices to give a military training to the foot troops, to the mounted artillery, and the train. The final decision as to the expediency of the two-year period of service can be given only by war. We can not wait therefor. The task before us is to provide for the carrying the shortened period of service into effect; that is, for the pres-

ent to introduce the measures absolutely necessary to lighten the duties.

In conjunction herewith we must extend the dispositions and arrangements for promoting the training that have already proven efficacious, if, in spite of the shortened period of service, we are to attain efficiency in the army and reserve. It must be indicated here that, under present-day conditions military training is possible only if ample funds are granted, which require to be greater the shorter the time at disposal.

Additional remarks.—Article I and Article II, sections 1 and 2: The provisions of the law of August 3, 1893, Article II, sections 1 and 3, referring to the length of service and peace strength of the German army, as well as of the law of March 25, 1899, Article II, section 3, referring to the peace strength of the German army, are permanently confirmed.

Article II, section 3: The full benefit of the legal period of the landwehr exercises must be obtained. The increased demands upon training in drill and target practice no longer admit the curtailment of the meager allowance of a fortnight by the time required for assembling and transporting the troops. The day of joining shall therefore be reckoned as the first day of exercise.

BERLIN, *November 22, 1904.*

SPEECH OF WAR MINISTER VON EINEM IN THE GERMAN REICHSTAG DECEMBER 3, 1904.

Referring to the proposed "Quinquennat" and military service laws, Minister Von Einem spoke, in part, as follows:

"In the present budget will be found a demand, repeated exactly as I formerly outlined, with the only difference that we ask for less. We shall abstain from bringing proofs that Germany must have a strong and efficient army, for we are all agreed that the German Empire can safely carry out and accomplish its mission in the world only by means of a strong and ready army. I leave out of consideration the powerful forces of our neighboring or surrounding military states, for these forces are so considerable that we can never equal them in numbers. This being so, we must approach the task with renewed energy, and improve the genuine

25880—No. III—05 M——8

value of the army, render the organization compact, and promote its training. These requirements are to be served by the two proposed laws, the 'Quinquennat' and that of two years' service. The Quinquennat aims at nothing further than to remedy the weak points and supply the deficiencies of our army. It will mend and complete the organization of the military forces and simplify the exceedingly difficult and complicated mobilization. * * *

"One must be very careful about drawing conclusions from the events of the Russo-Japanese war, inasmuch as cause and effect have yet to be established accurately; but one thing appears to me certain, also confirmed by military history, namely, that an army perfectly organized, when opposed to one of inferior organization, demonstrates at once its superiority in battles and skirmishes. And it is not necessary for me to explain here in detail the importance of being sure from the very beginning. The military history of every country teaches us this.

"What has been the character of our organization hitherto? * * * We have created bodies of men which, although bearing the name of divisions, are not really divisions. Our divisions are to be, in time of war, fighting units, in condition to operate and fight independently; they must for this purpose be composed of all arms and must be so constituted already in peace. For this reason we have already changed the organization of the artillery and added the artillery to the divisions. Now, we have divisions on the frontier and in the interior that, in respect to infantry, do not possess the required strength, and are lacking considerably, even to a third of this strength, and are also entirely without cavalry; a remedy must be found by the formation of new bodies. We have carefully considered whether it is possible to form battalions while maintaining the present peace strength; we have, however, answered this question in the negative. * * *

"Under no circumstances can we now consent to reduce the estimates for the infantry, * * * for it is precisely the infantry that must be strengthened and consolidated. * * *

"As regards cavalry there is nothing of great novelty in

our proposal to the House; for the lack of cavalry and the necessity of rectifying such was long ago acknowledged by the House in the creation of squadrons of mounted sharpshooters. Now, I have read in the Freisinnige Zeitung that the experiences in the Russian war and experience in general lead to the conclusion that cavalry should be diminished and that only a certain fondness has led to its proposed increase. I must banish this thought far from me. I am perfectly aware that we must demand only what is essential. I am of the opinion that in a future war the cavalry will play an important and significant part.

"I again invite attention to the fact that we possess divisions without cavalry, and that this evil has become evident since the formation in Saxony of a second and in Bavaria of a third army corps. This deficiency can not be made up by transfers. * * *

"The necessity of the increase of the cavalry is so intimately related to their distribution in case of mobilization and to the construction of formations in war that I am not at all in a position to specify publicly. I am, however, prepared to present the data in committee in no uncertain way and in the most exhaustive manner. Yet a word about the mounted sharpshooters. The idea of the creation of these troops was to have a body that should constitute excellent material for service as orderlies in conjunction with other arms. This object has in fact been perfectly attained, but that also is not sufficient. I shall demonstrate in committee.

"I now come to the two-year term of service. The European armies have continuously increased for many years. The 'rage du nombre' is no empty conception. The question of the two-year term of service is simply as follows: Is the prospect of victory greater with an army of only 200,000 men of three-year service or with an army of 300,000 men of two-year service? The latter view has been adopted and is the military reason for retaining the two-year term of service. Now, the army has been in a provisional state for 11 years. It is no secret that many officers, numerous leaders of troops, have regarded this provisional condition of a two-year-service term for the training of the foot troops with great anxiety.

"The mounted sharpshooters would have served as an excellent means for the increase of cavalry, but we should have required greater numbers in less time; we must have regiments—that I openly declare. There is likewise a question of the increase of special arms—the foot artillery, the pioneers, and the telegraph detachment.

"The results obtained have been hitherto entirely satisfactory, but they have been secured only by overexertion of the training personnel in all spheres. * * *

"For the period from 1860 to 1870, the soldier served, not 36 months in full, but rather 32, 33, and even 34 months; therefore 11 months more than now. Consequently I am entirely justified in stating that the final test of the two-year term of service can only be afforded by war, in the manner that war has affirmed the expediency of three-year service. It has furthermore been stated that men of the third year were actually only incumbrances; that may have been the case in some instances, but in general it was not true; men of the third year could be used in the training of troops. They also had more authority than men of the second year. The noncommissioned officers also received better training. In general it may be said that we have surrendered essentials in instruction by the introduction of the two-year term. You have yourselves acknowledged the necessity of compensation by granting the fourth battalions; but the latter have been discontinued for pressing reasons.

"Now, I do not deny that much has been done to alleviate this state of affairs. * * *

"The training of the army has become more extensive and more difficult; collective instruction suffices no longer, individual education must be substituted; the infantry man must be thoroughly disciplined, must be obedient, must think for himself, must be active, and judge the ground correctly. The closed drill must never be an end in itself; it must only serve to produce obedience and also enable the soldier to march well and correctly in large masses. Stress is always to be laid upon the fighting formations, the manner of fighting and the thoroughness of instruction in fighting. * * *

"We must do everything in our power to create for our noncommissioned officers a secure existence. We do this in

assuring them of better pay at a certain period. Further means of instruction are to be provided by enlargement and improvement of the exercise grounds, by an increase in targets and shooting material. * * *

"Very important are also the exercises of the reserve. We can not complain of the behavior and the general training of the troops, but the fighting training is not perfect. The two-year term of service furnishes so many men that we can never think of calling out every man for the exercises enjoined by law; we have, however, the right to expect the means of calling them to a reserve or Landwehr practice.

"Estimates are submitted for the better equipment of our forces with the 1898 rifle. It is not a question of a new rifle, but of an old, well-tried one.

"Further estimates propose the introduction of the barrel recoil field gun. In committee I shall have the opportunity to give details upon the most excellent model which we have constructed.

"As you see, we desire to introduce improvements in the army which demand large appropriations. These improvements will be justified when it is necessary to demonstrate the readiness and efficiency of the German army."—*Berliner Tageblatt.*

SIMPLIFICATION OF THE DRILL AND FIRING EXERCISES.

The shortening of the term of enlistment of the infantry to 2 years is now followed (Cabinet order, dated January 27, 1905) by a simplification of the drill regulations and of the firing regulations, which eliminates from the drill regulations the backward march, the exercises in square, the double column, and increases the distances between companies in column of companies in order to form line to right or left. Some further simplification of the battalion movements will be announced in time by the war ministry. The double column was inserted in the Prussian drill regulations in 1812, and, until it showed shortcomings in the war of 1870, was a favorite form of attack.

The changes in firing regulations include the limitation of target practice to distances not exceeding 400 meters, the restriction of adding special exercises in target practice to

superiors personally present at the firing, and now permit the holding of test firing in the open by order of regimental or higher commanders.—*M. I. D., 1176–i.*

MILITARY BUDGET.

In the military budget for 1905 the Government demands for the coming quinquennial period an increase of the peace strength of the army by 10,339 men, with the proviso that this increase shall take place not all at once, but by gradual stages in the time from January 4, 1905, to March 31, 1909, so that the army at the end of the period of calculation in 1909 shall have a total strength of 505,839 men (excluding the one-year volunteers) and of possibly 86,000 subofficers.

For the years 1905–1909 the military plans call for the following new organizations:

Eight battalions of infantry, viz, 7 Prussian, 1 Saxon; 9 regiments cavalry, viz, 6 Prussian, 2 Saxon, 1 Bavarian. These, with 17 squadrons mounted riflemen, will leave to be formed 28 squadrons, as follows: Seventeen Prussian, 8 Saxon, and 3 Bavarian; add brigade staffs, 3 Prussian, 1 Saxon; 2 Prussian foot artillery battalions of 4 companies each, using the 6 companies already in existence. The new formations will thus be two battalion staffs, 2 companies, 3 draft (wagon) detachments (1 of the foot artillery target school), 3 Prussian pioneer battalions with 3 regimental staffs of foot artillery, 1 Prussian telegraph battalion, 1 Bavarian telegraph company, 1 Prussian experimental company of business troops, 1 wagon detachment of telegraph troops.

* * * * *

In addition, in the budget for 1905 there is planned an important change in the organization of the technical institutes for infantry and artillery. The significance of this institute for fitting the army for war has increased from year to year. In its directions steadily increasing requirements are imposed. It is therefore ordered that in them only old, experienced officers are to be used. In consequence, the positions of directors of the institutes with supervisory management are to be filled by regimental commanders, that of subdirectors by staff officers.—*Internationale Revue.*

Budgetary strength of the German army for 1905, compared with strength of army for 1904 (including Bavaria).

Branch of the service.	Officers.			Noncommissioned officers and men.		
	Strength for 1905 (proposed).	Strength in 1904.	Increase.	Strength for 1905 (proposed).	Strength in 1904.	(+) Increase; (−) decrease.
Infantry:						
Infantry proper (216 regiments)	11,932	11,894	38	364,053	362,703	+1,350
Infantry instruction battalion	1	1	.....	10	10	.....
Schools for noncommissioned officers (9)	158	158	.....	4,763	4,763	.....
Firing schools (2) and rifle-testing commission	20	20	.....	33	33	.....
Rifles (18 battalions)	388	388	.....	11,188	11,188	.....
Machine guns (16 detachments)	64	64	.....	1,382	1,382	.....
Recruiting depots	864	861	3	6,027	5,969	+ 58
Total infantry	13,427	13,386	41	387,456	386,048	+1,408
Cavalry:						
97 regiments	2,446	2,412	34	67,642	66,598	+1,044
3 riding schools	25	25	.....	299	299	.....
Total cavalry	2,471	2,437	34	67,941	66,897	+1,044
Artillery:						
Field artillery (94 regiments)	2,996	2,996	.....	63,817	63,816	+ 1
Field artillery firing school	66	66	.....	1,370	1,370	.....
Foot artillery (18 regiments)	883	876	7	23,606	23,348	+ 258
Foot artillery firing school	25	25	.....	577	577	.....
Draft detachments (11)	11	11	.....	627	627	.....
Experiment company of the artillery testing commission	5	5	.....	257	257	.....
Chiefs of artillery depots, etc	46	46	.....	.....	.....	.....
Total artillery	4,032	4,025	7	90,254	89,995	+ 259
Pioneers (26 battalions)	598	598	.....	15,433	15,433	.....
Communication troops:						
Railroad troops (3 regiments, 1 battalion, 2 companies)	177	177	.....	4,393	4,495	− 102
Telegraph troops (3 battalions, 2 companies, 1 detachment)	50	50	.....	1,532	1,532	.....
Balloon troops (1 battalion, 1 detachment)	17	17	.....	397	397	.....
Experiment troops (1 detachment, 1 company)	13	8	5	120	5	+ 115
Total communication troops	257	252	5	6,442	6,429	+ 13
Train (23 battalions)	342	323	19	7,744	7,797	− 53
Srecial services	3,387	3,345	42	4,888	4,974	− 86
Imperial military court	8	8	.....	.....	.....	.....
Total army	24,522	24,374	148	580,158	577,573	{+2,826 / −241
Net increase	.....	.....	148	.....	.....	+2,585

Budgetary strength of the German army for 1905, etc.—Continued.

NONCOMBATANTS.

	Strength for 1905 (proposed).	Strength in 1904.	Increase.
Surgeons	2,219	2,202	17
Paymasters and various	1,061	1,055	6
Veterinary surgeons	683	679	4
Armorers	1,018	1,011	7
Saddlers	97	93	4
Total noncombatants	5,078	5,040	38

RECAPITULATION.

	1905 (proposed).	1904.	Increase.
Officers	24,522	24,374	148
Noncommissioned officers and enlisted men	580,158	577,573	2,585
Noncombatants	5,078	5,040	38
Grand total	609,758	606,987	2,771

Composition of the General Staff (Budgetary).

PRUSSIA.

Chief of the general staff	1
Aids	2
Generalquartiermeister	1
Oberquartiermeister	3
Chiefs of section in the great general staff, or chiefs of the general staffs at general headquarters and in large fortresses	36
Captains and field officers	189
Railway commissioners:	
Field officers with rank and allowances of regimental commanders	3
Field officers with lesser rank	19
Captains, first class	3
Retired (pensionirte) officers, field officers or captains	5

SAXONY.

Chiefs of the central section, or chiefs of the general staff at general headquarters	3
Chief of section of land survey with rank and allowances of regimental commander	1
Captains and field officers	15
Railway commissioners, field officers	2

WURTTEMBERG.

Chief	1
Captain and field officers	4
Railway commissioners, field officers	2

RECRUITING STATISTICS, 1903.

The number of young men having attained the military age has increased to 473,026. Adding to this number those postponed of 1902 (316,246), of 1901 (247,499), and of the previous classes (36,048), there are obtained 1,072,819 men as the total figure of resources of recruiting.

The following classification has been made:

Unfit for service	41,828
Debarred from service	1,167
Postponed, emigrated	601,455
Incorporated in the land forces:	
Serving under arms (*a*)	203,913
Serving without arms (*b*)	3,670
Incorporated in the navy	7,201
Assigned to the recruiting reserve:	
Of the army	79,452
Of the navy	1,320
Assigned to the first call of the landsturm	96,375
Young men qualified, in excess	5,960
Entered as volunteers:	
In the army (*c*)	[a] 28,769
In the navy	[a] 1,709
Total	1,072,819

The number of young men having enlisted in the army under the military age amounts to 20,457.[a]

Adding this amount to those mentioned under the heads of *a*, *b*, and *c*, there is obtained a contingent total of 256,809 men, incorporated during the year 1903.

The resources from recruiting in 1903 (1,072,819) appear at first sight considerably below those of preceding years—1,610,741 in 1902 and 1,618,612 in 1901—but this diminution is only apparent; it arises from the different method by which the recruiting statistics for 1903 were made up.

For the preceding years, the returns from districts comprised all young men having attained the military age, born

[a] The one-year volunteers are included in these figures.

or residing in the district; consequently some young men might figure on several different lists.

In 1903 the returns comprise only those registered who were born in the district or abroad. Besides, the defaulters who in 1902 were 129,728, no longer figure in recruiting statistics.

CHANGE OF ARTILLERY AND THE 4-GUN BATTERY.

The question with regard to the change of the present German artillery materiel into barrel-recoiling materiel, which has been decided upon in principle, and which is on the point of being carried out, is the cause of frequent discussions in the German press on the advisability of either retaining the 6-gun battery or of adopting that of 4 guns, as has already been done in France.

Generals Rhone and von Blume have vigorously taken up the cudgels for the 4-gun battery. The former observes that the only means of not inordinately increasing the number of artillery wagons, already so numerous, is to replace 2 guns by 2 ammunition wagons in each battery, which would have the effect of allotting 4 guns and 8 ammunition wagons to each battery, instead of 6 guns and 6 ammunition wagons as at present. The latter remarks that if it is admitted that the battle front of an army corps on the offensive is limited to 3,000 meters, the artillery consisting of 24 batteries of 6 guns would require 2,500 meters, leaving thus hardly any space entirely free for the infantry. On the other hand, with 24 batteries of 4 guns each, the artillery would not require a front of more than 1,500 meters, and the infantry would thus obtain the space necessary for its employment.—*Journal of the Royal United Service Institution.*

GERMAN MILITARY PROJECTS.

It is reported from Berlin that the Imperial Cabinet and the ministry of war have settled the general lines of the project of increase of the army, which was put off last year owing to the poor condition of the finances.

Last year the chief general staff demanded: The creation of two new army corps, the armament of field artillery with

cannons of new model, and the constitution of a third battalion of the new regiments now having two.

These requests had to be put aside owing to the opposition of the Catholic members of the Reichstag, who have the last word in all increases of military forces.

Anyway, the Russo-Japanese war has allowed the giving up of the projected reenforcements of the First Corps (Konigsberg) and the constitution with them of third battalions for the new Metz and St. Avold regiments.

The sharpshooters are to have a machine-gun section. The field artillery will keep its present armament.

The present war has converted the adversaries of an additional increase of the fleet; therefore the credits asked for by the minister of marine for the construction of two new squadrons and several cruisers will doubtless be granted.

The Kolnische Volkszeitung, the organ of the Catholic group, speaks favorably of the credits, if the idea of increasing the peace effective by 20,000 men is given up. It is at present of 495,000 men, 80,985 noncommissioned officers, 29,292 officers, and 105,145 horses, without counting the Bavarian army.—*La France Militaire.*

THE GERMAN IMPERIAL MANEUVERS, 1904.

The principle feature of the German imperial maneuvers of this year was the joint participation of the army and navy. This is also the first instance where a large body of troops has been transported by sea and landed as a part of the exercises thereof.

The region of the maneuvers was the western portion of the Grand Duchy of Mecklenburg-Schwerin, in northern Germany. It lies between the stations of the engaging forces, is easily accessible by rail, and sufficient in extent to permit operations simulating war.

The preliminary exercises included the parade, inspection, and review of the two opposing corps by the Emperor near their home stations—the Guard Corps at Tempelhofer Feld, Berlin, on September 2, and the Ninth Corps at Altona on September 5. As constituent portions of the Ninth Corps, there were also present on the occasion mentioned cavalry division "A" and the landing corps from the active battle

fleet commanded by Rear-Admiral Breusing. The strength of the landing corps was 3 divisions, the first and second each composed of 2 battalions, the third of a gun detachment of 7 half batteries and of 5 machine-gun companies.

From the Ninth Corps a composite brigade, the Thirty-seventh, consisting of the Seventy-eighth and Ninety-first Regiments of infantry, of a platoon of hussars, regiment No. 3, two batteries of the Sixty-second Regiment of field artillery, together with wireless telegraph apparatus, was detached and assembled at Travemünde on the same evening and embarked on board the second squadron of the battle fleet. The embarkation commenced in the afternoon between 4 and 5 o'clock and, being favored by a calm, was completed before dark. Boards bearing the names of the different vessels had been set up conspicuously along the shore and indicated the points of assembly for the different detachments of troops. From here boats rowed by sailors or towed in sets of three or four by pinnaces took them rapidly to their respective vessels without confusion.

The infantry was shipped and transported on coast-defense ships. The 12 guns and limbers of the artillery were lifted by cranes from the landing stages and lowered into ordinary lighters from the port of Hamburg. The horses were passed into the lighters over gangways covered high on the sides with canvas. Special pains were taken with straw paddings to protect the legs of the animals. They were then led down ramps to their improvised stalls.

The total time consumed in the full embarkation of 3,600 men, 170 horses, and 12 guns was 3 hours. The fleet and transports then proceeded eastward along the coast to Wohlenburger Wiek. After the best landing place had been sought out by the torpedo boats the disembarkation commenced, the sailors and soldiers jumping into the shallow sea and wading ashore. The unloading of horses and guns proceeded simultaneously. The horses were led into the water down sloping ramps reaching bottom and ridden or led ashore. The guns, limbers, and carriages were lowered by derricks from the lighters and pulled ashore by hand. The saddlery was packed in sacks and together with ammunition was carried dry in boats to land. The saddlery

sacks were carefully numbered, a system which permitted their safe return to the proper troops. The two companies of pioneers commenced at once and soon constructed a pier extending 100 meters into the water. The composition of the two opposing forces is shown in Plates I and II.

Plate I.

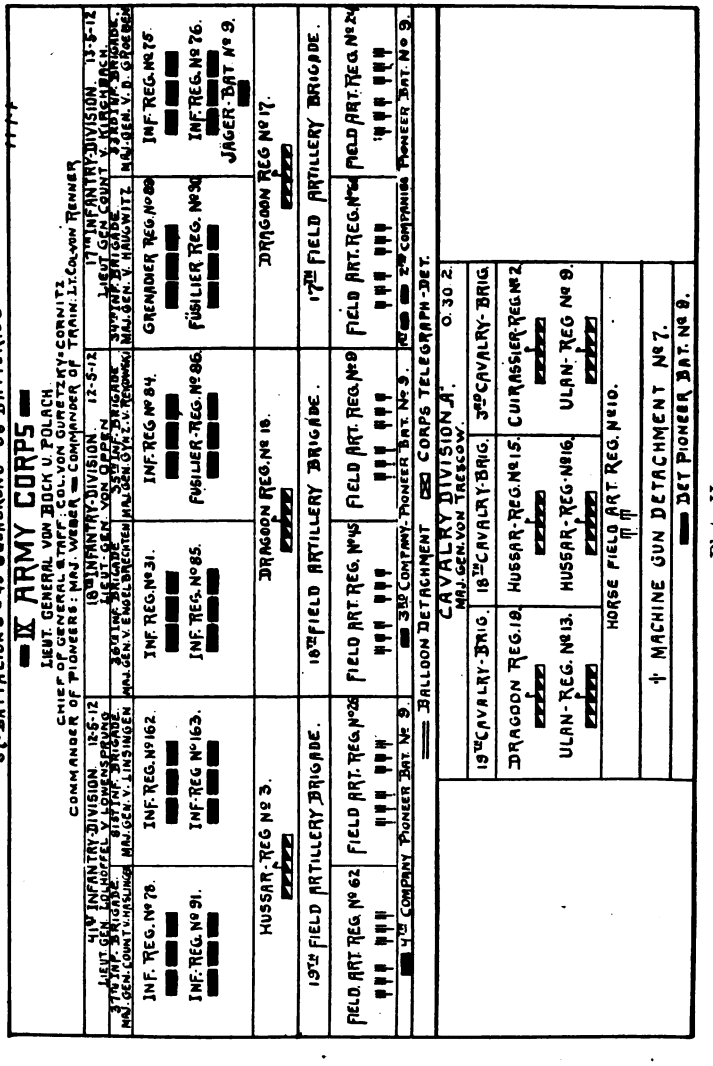


Plate II.

REMARKS ON MANEUVERS.

It was observed at the maneuvers that the known infantry attack was not in any degree departed from. A change was scarcely to be expected at the period of these maneuvers when all eyes were turned to the east where the Japanese were winning the victory at Liauyang after Prussian methods and in Prussian fashion.

On this subject the Kölnische Zeitung says:

"This does not prove that this style of infantry attack—the Prussian style—is the only correct one. A standard attack for infantry is not determined upon; the conditions for the time being in real war will decide in any particular instance how the tactical attack of the infantry is to be conducted with sure view to success, but it is in any case to be observed that the leaders of our army are striving to utilize and test the usefulness of the experiences of the bloody war in East Asia by transforming them, so far as they appear suitable, to our own conditions.

"The exceedingly skillful maneuvering and cooperation of artillery and infantry showed that our higher troop leaders have completely understood the correct employment of each separate arm of the service. * * * This may be attributed in no small measure to attendance of the general officers at the firing schools for artillery and infantry."

On the same subject of infantry attack, Maj. Gen. Sir Alfred E. Turner says, in the Empire Review:

"Over and over again the Japanese have advanced shoulder to shoulder against and assaulted positions occupied by a brave and stubborn enemy; time after time have they been beaten back, only to advance again, ultimately to succeed. * * * It is a pregnant fact that the Japanese army is modeled exactly on the lines of the German, and that the unequaled general staff of the German army is the prototype of the Japanese, which has excited the wonder and admiration of the world by its extraordinary capacity and success."

In conclusion, the German infantry drill regulations do not in any sense prescribe the choice of the method of attack, but it is a common observation at the maneuvers that in order to bring about a decision the lines are reinforced to density.

The cavalry (it would cease to be German if it did not) favored the mounted attack, and although there were instances not wanting, it was not to be drawn from its fancy.

The opinion holds in Germany that the mounted attack for good troops is a stage in advance of the dismounted, and the explanation heard of the frequent fighting on foot in American wars is that it is suited to our local conditions,

where every man may be a good shot but is not an equally skillful sabreuer, riding in close formation.

The new cavalry bridge apparatus carried this year is said to have given satisfaction, and to be preferred to the folding boat. It was used over the smaller streams, including the Trave.

The new field signal lamp is a combination of the heliograph with an artificial light for signaling, and it is possible to pass from the one method to the other as soon as the sun disappears behind a cloud or reappears. A telescope attached to the heliograph is used for sighting the instruments. The flame, produced by burning a mixture of oxygen and acetylene gas, impinging upon thorium brings it to incandescence. The intensity of the light is 500 candlepower, and a system of lenses brings it to 80,000 candles. The apparatus is set up on a portable stand, capable of being turned in any direction. The optical axes of the heliograph, telescope, and field lamp arranged parallel to one another make it possible to sight both signaling instruments with the one telescope. The acetylene is generated in the usual way from calcium carbide and water in a special vessel. The oxygen is contained compressed in small steel cylinders, holding a supply sufficient to last several hours, and may be carried from the saddle. Under the ordinary conditions of field service, the instrument may be relied upon for communication for distances of 12 to 15 kilometers, and under the most favorable conditions of 50 kilometers and more.

As 8 cyclists are attached to each corps headquarters, and 115 to each infantry division, groups of wheelmen are frequently seen in the maneuver district. Their usefulness in the intelligence department is highly esteemed and encouraged. It is expected they will be valuable in reconnoitering.

The military motor cyclist now wears the ordinary leather "chauffeur" uniform, with goggles.

The excellent system followed in Germany should create a reserve of automobiles of a strictly military type, available in time of war. The development of military automobiles is the special work of the experimental department of the communication troops, which has made extensive trials with

all the various types on the market and has evolved therefrom a more or less standardized car suited to military purposes. Inversely, this has reacted on the motor-car industry in general, and as the model defined for the army is found also to be admirably adapted to the needs of the public, giving, too, guaranty of efficiency and reliability, a great number of automobiles of a military pattern has been constructed and is in private ownership, forming a reserve naturally at the disposal of the Government in mobilization. In no case could the Government itself own the necessary number, on account of the expense connected therewith and the impossibility of keeping pace with the progress of invention.

Mounted patrols use carrier pigeons; the equipment with every two riders being four pigeons. The pigeons are carried in bags during the ride and transferred to a cage at a halt.

As is known, there are pigeon stations in all the German fortresses for intercommunication or for communication with the hinterland. The birds of the association of German societies of amateur pigeon fanciers are also available and trained for this service.

The latest transportable field stations of the wireless telegraph system are thus described: The two-wheeled power car contains one benzine motor of about 4 horsepower, coupled direct to an alternating current generator of 2.5 kilowatts capacity, including water circulating pump and an automatic water cooling apparatus, and device with disengaging clutch for hauling in of balloon. The two-wheeled apparatus car contains one complete transmitting and receiving device for two waves of the following range with kite or balloon: Two hundred kilometers with writer and 300 kilometers with hearer; or with three masts, each 15 meters in length, with writer 75 kilometers, with hearer 100 kilometers. The apparatus car contains also 2 kite and 2 balloon cables, each 200 meters in length, and 2 cable drums with crank and brake, attached to the cars on the outside. The two-wheeled implement car contains 4 gasometers of each 5 cubic meters capacity at a pressure of 120 atmospheres; 1 benzine tank, 2 kite balloons, 6 linen kites in 2 cases, tools and spare parts.

25880—No. III—05 M——9

The three masts, each of about 12 to 15 meters in length, can be fastened together. Experiments are being made with an instrument that may be carried on a pack animal and operated at a distance of 20 kilometers.

The telephone apparatus issued to and carried by mounted patrols is suited for a short-distance service. The uninsulated steel wire may be laid at the rapid rate of 4 to 5 kilometers per hour from the horse and dropped directly on the ground or tossed over the branches of trees. It is one-half millimeter in diameter. Several kilometers may be carried without fatigue to the rider. The thinness of the wire makes the line very liable to breaks.

In seven and one-half hours, commencing at 5 o'clock p. m., September 15, the infantry (excepting only the troops from Wismar and Schwerin), the communication troops, etc., numbering in all nearly 51,000 men, 3,500 horses, and 400 vehicles, were assembled at the railroad stations of Wismar, Hornstorf, Kleinen, Bobitz, Plüschow, and Grevesmühlen, placed in 39 trains, and forwarded to their home garrisons. At the same time the regular traffic was maintained.—*M. I. D., 717–f.*

TACTICAL PROCEEDINGS ADOPTED IN THE LAST IMPERIAL MANEUVERS IN GERMANY.

In these maneuvers infantry was used according to the regulations and traditions of the past years—contact all along the front and violent pressure on and turning of the wing most dangerous for the retreat of the enemy. There was not the slightest trace of Boer tactics.

The greater or minor density of firing lines depended essentially on the circumstances of the engagements and of the ground. This, broken and uncertain, was well adapted to the employment of infantry and artillery, less to the use of cavalry. Preparatory engagements and fire attack predominated. Great use was made of machine guns at medium distances, in which their precision is greater than that of the rifle. The rifle is considered as an arm for short distances, beginning from 600 or 800 meters' limit, that the infantry must attempt to reach before opening fire, to avoid excessive waste of ammunition. This distance is reached

by keeping under cover, or, if this is not possible, by advancing by rushes and crawling along the ground if necessary. As soon as the rounding the flank is noted the whole front is attacked, with the support of the artillery. which then does not fear to approach the object to be driven back.

The artillery was always employed in mass. The batteries were placed as much under cover as possible, so that the pieces, the muzzles of which barely emerged above the top, could hardly be seen. The artillery of the Ninth Corps, having one day neglected these precautions, was by the umpires declared out. The shrapnel is considered as the principal artillery projectile. It appears that the light field howitzers had no special duty. Anyway, artillery as a body was always ready to intervene to help and support the infantry.

The cavalry found this year fewer chances of taking part in engagements in mass than it did in the past; but judicious use was made of it in scouting and patrolling services.

The ground was but ill adapted to the concentration of large masses of cavalry, and army corps of this arm were not formed, as usual, by the union of two divisions. On the other hand, more than one regiment and brigade charge took place, with the object of checking a pressing attack or aiding masses strongly engaged. The cavalry telegraphists were largely employed in the exploration service. The cavalry bridges were not brought into use, on account of the conformation of the country.

Great use was made of the defensive organizations of the positions, and the pioneers cooperated in the work with the infantry. This organized numerous supporting points, even on the offensive.

The troops on the lines of communication were represented by telegraphists and aerostats. The first connected the different headquarters among themselves; the latter brought captive balloons into action and did excellent work as observers, and also gave a signaling balloon for the direction.—*Strassburger Post.*

GREECE.

REORGANIZATION OF THE ARMY AND THE ARMAMENT.

The Greek Chamber of Deputies has adopted a new military scheme, elaborated by the heir apparent, who is commander in chief of the army. According to this scheme the period of military service will be for 12 years, 2 of which will be spent with the colors. The contingent up to the present has been fixed at 11,000 men, of whom 6,000 were actually enrolled. This number has now been increased to 15,000 men, which, taking wastage into account, brings up the peace strength to about 28,000 men, and the war effective from 120,000 to 130,000 men.

The military forces are in peace time divided into 3 divisions, in time of war into 6, each consisting of 2 infantry brigades, 2 battalions of chasseurs, 1 artillery regiment, 1 cavalry regiment, 1 engineer battalion, 1 transport company, 1 field hospital, 1 ammunition park, with commissariat, etc.

The infantry in peace time will consist of 12 regiments of 3 battalions each, the third being a battalion cadre. These regiments are increased to 24 in war time; 6 battalions of chasseurs in peace, and 12 in war time. The artillery will consist in peace time of 3 field artillery regiments of 8 batteries of 6 guns. In war time each infantry division will receive a regiment of 4 batteries; in addition, in peace, as in war time, the Hellenic army will possess 6 mountain batteries and a heavy artillery brigade division of 3 batteries. The cavalry will consist of 3 regiments of 4 field squadrons and 2 squadron cadres, and the latter will in war time form 6 divisional squadrons. The technical troops will consist in peace time of 3 battalions, and in time of war of 6. The transport will consist in peace of 3 companies, and in war time of 6.

The war department has also in contemplation a reform of armament. It is proposed to replace the Gras 11-millimeter rifle by a new repeating rifle and to introduce 8-centimeter Krupp field guns. The models under consideration are, as regards rifles, the Krag-Jörgensen, the Mauser, and the Mannlicher, and, as regards guns, those of the Krupp, Ehrhardt, Skoda, Schneider, and Vickers systems. The reorganization should be completed in two years from 1905.—*Revue du Cercle Militaire.*

HOLLAND.

REARMAMENT OF THE FIELD ARTILLERY.

The Dutch Government has adopted for the new armament of its field artillery the Krupp gun with hydraulic brake, spring recuperator and shields.

The gun is similar to that already adopted by Switzerland. Its initial velocity is, however, a little greater than that of the Swiss model (1,700 instead of 1,590 foot-seconds), while the weight of the projectile is a little less (13.2 instead of 13.9 pounds).

The materiel ordered comprises 204 pieces and 408 caissons. In addition, 200 caissons destined for use in the ammunition parks will be obtained by the alteration of existing carriages still fit for service; this last operation, as well as the manufacture of a part of the ammunition will be carried on in the Dutch arsenals.

The total expense will reach 14,000,000 francs, a fifth of which will be spent at home.—*Bulletin de la presse.*

ITALY.

ITALY'S POSITION IN THE MEDITERRANEAN.

Italy in the Mediterranean. An essay of the former chief of the General Staff and well-known military writer, Pittaluga, treats once more, starting from most recent events, a life question of Italy—her part or rôle in the Mediterranean—and on account of the fact that it was written in French in the Revue d'Italie published in Rome, it demands special interest. The author starts from a series of simultaneous events from the first half of last year, Loubet's journey to Rome, the inspection of the Italian fleet, 44 ships at Naples, the presence of the English fleet of 110 ships in the Gulf of Degli, France; our Kaiser's visit to Southern Italy, newspaper reports of night maneuvers of Austrian ships in Italian waters, and finally the singular address of M. Pelletan in Terryville in Tunis which exactly in that day of Franco-Italian fraternization accentuated so strikingly the worth of Bizerta. "It constitutes a center for the union of those light craft, torpedo boats and submarines, rapid insects whose stings kills colössi, and in case of war gives the mastery of the whole Mediterranean and attaches to the French flag the deciding influence." [a]

Against Pelletan's concluding sentence Pittaluga interposes remonstrance. Of a mastery of the Mediterranean England alone can speak with her mastery of the gates Gibraltar and Suez-Ismalia, her positions of Valetta in Malta, Cypress, Rhodes, Alexandria, and Aden. Bizerta has significance only for the inner basin of the Mediterranean and in conjunction with Toulon, Ajaccio and Algiers secures to France the mastery in the western Mediterranean basin.

From that statement of Pelletan, which, in the festal ex-

[a] The building of Bizerta continues quietly and steadily. On December 4, 1904, the French Chamber with an imposing majority approved another 4-million francs for this purpose.

citement of Rome and Naples, possibly excited more attention in foreign lands than in Italy itself, is for Italy, according to Pittaluga, the hint of Bizerta as the sally port against Sicily, the weightiest thing. In a few hours those rapid French insects from Bizerta could take their flight to Porta Empedocle, Sciacca, Marsala, and Trapani. "These facts put Italy in such a condition of inferiority that it must be rectified, not out of mistrust, but from considerations of balance of power and of mutual respect." Sicily must be made secure. This can be effected by building a war harbor on the south and west coasts or upon the island Tavignana, and by carrying out the original plan of a fortified camp at Castrogiovanni. But this is not enough. Italy must, like the other Mediterranean powers, get a firm foothold on the African coast; the possession of Tripoli must not be pushed off upon the long bank, for England is beginning, utilizing the hazy boundary of Egypt on the west, to lay her hand upon the harbor of Tobruk, many kilometers broad and 10 to 12 meters deep, lying opposite Crete. But Tobruk is the necessary third member in an Italian system of fortifications—Sicily, Tarent, Tripoli. Its seizure by another power would be equivalent to annulling Italy's right to Tripoli, admitted by Europe. Without Tobruk Tripoli has hardly any value for Italy. In possession of Tobruk, however, and supported by Sicily, Spezia, and Maddalena, Italy is in position to maintain herself, at least defensively, in the western Mediterranean, and protected by Tarrent and Venice in the eastern Mediterranean. To secure these strategical positions must be the programme of a firm and constant Italian foreign policy for the first years of the new century.

General Pittaluga observes that his deductions, leaving out of consideration Italy's historical position, are founded merely upon her geographical position. Naturally the policy desired by him must be supported by a corresponding development of the navy, which he now finds begun in a satisfactory way. In this limitation lies a weakness of his interesting study. The development of the Italian navy must, in one opinion, proceed quite differently if it is to justify extended tasks of this kind. We write 1905. What can be achieved during the next five years in this direction?

Unfortunately, the further question is not answered, What Italian Government is to assume the task of carrying out a policy which would aim equally against England and France?

Pittaluga's study does not touch upon what has actually been done for the defense of Sicily. Therefore an article on this subject in "Nord und Sud" is particularly welcome, and two facts from it may here find mention. The straits of Messina are secured on the island side by the fortified place Messina and on the mainland by a chain of forts, so that the strait has thus been transformed in a certain sense into a war harbor. The lack of modern armored covering, however, prejudices materially the work of the fortified place. But in any case the collective fortifications of the straits represent the only arrangements in Sicily that can make claim to being modern fortifications. The works of the other seaports are wholly antiquated, and in the reconstruction of the ancient strategical point, Castrogiovanni, in the center of the island, so far nothing has been done, probably for financial reasons.—*The International Review.*

LIGHT SAPPERS' UTENSILS.

Owing to the favorable results obtained in the trials carried out by the infantry school of fire at Parma, an experiment on a large scale with the implements in question was decided upon, and accordingly, in July, 1903, 60 small pointed spades and 200 small pickaxes were distributed to 5 regiments of infantry—bersaglieri and alpines—4 of which took part in the grand maneuvers, and experimented also with their new accouterments.

It was decided that the experiment should continue after the maneuvers, and that by the beginning of 1904 the authorities concerned should report to the ministry, making the necessary suggestions and proposals.

The implements gave favorable results, but the experiments showed that the proportion of light implements to be assigned to each company ought to be raised to 80 spades and from 12 to 15 pickaxes (instead of 37 and 13, respectively).

Regarding the way of carrying the implements—that is,

if they were to be carried hanging to the belt or on the knapsack—no decision was arrived at, the suggestion being to await the results of the experiments with the new knapsack.

The expense for providing the number of implements recognized as necessary amounts to about 700,000 lire, and, considering the present condition of the extraordinary part of the war budget, the ministry has thought it best to postpone for the present the suggested alterations.

The reporter of the committee of finance, Senator Taverna, insists on a definite resolution being come to once for all, and is not satisfied with the financial reasons that the ministry gives to partly justify the delay.

Though it may be true that 700,000 lire are not a great sum, it must be remembered that still greater demands are continually being made on the war budget after its consolidation, to the extent of some millions, and that the extraordinary part is already much embarrassed by the many things exacted of it.

However, in the saving resulting from the change of the soldiers' equipment it would seem that the money could be found for the purchase of sappers' implements; therefore delay seems not only opportune but advisable, provided that it does not extend to an indefinite time.—*Popolo Romano.*

THE STRENGTH OF AN INFANTRY COMPANY IN TIME OF PEACE.

The war budget provides for the year 1904–5, which has just begun, an average of 207,162 men under arms, of which 180,520 are assigned to the infantry. Given this estimated force, what will be the maximum, minimum, and average strength of a company?

Senator Taverna's report gives the following details furnished by the minister of war:

On January 1, 1904, the force under arms in the infantry regiments was 90,737 men; 60,108 recruits of the 1883 class were assigned to the infantry, so that at present the total strength of those regiments can be calculated at about 150,845 men.

The force for the depots and staffs of these regiments reaches, according to the table of formation of the army,

9,824 men; therefore 141,021 remain at the disposal of the companies. As there are 1,371 companies, the strength can be obtained by dividing 141,021 by that number, which gives 102 men.

In reality, however, it will be somewhat larger, because in deducting from the total force of the regiment that of the depot and staff, these detachments have been considered as complete, while even in them the effective force is certainly smaller than the organic force, even though the specialities of service and the smaller size of the detachments themselves as compared to the companies does not allow of many vacancies.

If one considers that the new class is still in its first months of service and, therefore, is still liable to lose some men, the result will fall to about 100 men. This will be the maximum force, to which a minimum force of 59 men will correspond, and an average force of about 80 men.

It must be kept in mind, however, that this is a purely theoretical figure, because the maximum force, which ought to last six months, instead lasts somewhat less, so that the minimum force falls from 59 to 54 men, and the average force from 80 to 74.

In Germany the estimated force of a company is 135 men; in Russia, 111; in France, 100, and in Austria, 93; but the estimated force and that under arms in those countries is about the same all the year (which is not the case in Italy), as the leaving of one class is followed within from two to eight weeks by the joining of another.

Evidently this state of things makes the Italian army inferior, because if it is true that the strength of armies mainly consists in the force of its cadres, it is also true that to have good officers it is necessary that they should be used to taking the initiative and responsibilities characteristic of their rank. At present it seems rather difficult to train officers to initiative and responsibility with such a reduced strength. Such a long period of reduced forces is certainly not to the advantage of the troops themselves in their instruction. New weapons have increased the importance of instruction of the individual soldier, who can only in this way make the best use of perfected arms. These arms, in inex-

perienced hands, would do more harm than good because, being rather complicated, they are easily put out of order, and besides being capable of great rapidity of fire they can cause a great waste of ammunition. The deadly effect of the new arms obliges the troops in action to scatter in small groups or in slender lines to take the greatest possible advantage of the natural shelter that the ground affords.

Every man should know how to regulate his own fire, but at the same time must, at a signal from his superior, leave shelter to rush to the attack when taking the offensive, and when on the defensive come out in pursuit of the enemy already broken up and demoralized by the enemy's fire.

The experience of late wars has shown the absolute necessity of inculcating these principles in the men, and also that officers and men should be thoroughly in touch with each other. Only in this way can perfect confidence be established, and it does not seem possible to obtain these objects with troops reduced to such a degree for half a year.

The reduced strength of the companies presents drawbacks, even with regard to mobilization. More than this could be said, but to state a defect is not to remedy it, and here is where the Taverna report is defective.

Those who are in the habit of judging of institutions and situations superficially consider the simplifying of administrative methods and consequent reduction of personnel as a sure means of great economies, which could be used to improve the much-lamented state of the estimated force.

The honorable reporter of the war budget has not this illusion, because if it were possible to do away with one-third of the administrative personnel it would only result in an economy which would hardly be sufficient to increase by one month the maximum strength of the companies. According to the Honorable Taverna, considerable savings, which would go to the benefit of the troops, could be realized by the changing of the system regulating the soldier's uniform, by the institution of company depots for its distribution. This is a proposal which certainly deserves careful consideration, the system having been adopted with success in other armies, but it will never produce the eight and a half millions which are required by the war budget to bring the

average strength of our infantry companies on a par with the Austrian companies—which is the smallest of all other armies—and to reduce to only 4 months the minimum strength.

WAR ACCOUTERMENT OF THE SOLDIER.

The question of lightening the soldier's pack has been called special attention to in the Senate by the permanent financial committee, to which the administration of war had given the following information:

The reduction of the individual equipment for the soldier in time of war, till now suggested, has been determined as follows:

Abolishing the linen jacket in the list of clothes for the recalled men, who are in any case given the sweater (farsetto a maglia).

Reduction in the number of blacking brushes and boxes of blacking.

Lessening the number of gaiters by one pair.

Abolishing the shelter tent half and accessories for the noncommissioned officers of the foot troops.

Reduction of the number of tin cans for carrying meat, which were carried hanging from the belt or strapped to the knapsack.

Lessening the number of pairs of shoes by one for the mobilized troops and the substitution of a pair of barrack shoes which cost less. A model of the barrack shoes, which are to be of linen with rope soles, has already been prepared and is being experimented with by the alpine troops.

A model of a comfortable and hygienic field cap has also been prepared. It is to weigh 195 grams and is to substitute in camp, exercises, grand maneuvers, and war the "kepi" (310 grams), and perhaps even the alpines' hat, which would then be kept only for time of peace; its adoption, however, has not yet been definitely settled upon.

For the carrying of the pack a better distribution of the objects on the soldier's body has been considered, and, during the field exercises of 1903, seven regiments experimented with a knapsack unprovided with a cartridge box, with the

bread bag hanging to it and the canteen placed on this bag. The cartridges were distributed partly in the cartridge pouch in packets and clips and partly in the cartridge cases of the reserve cartridges hanging from the belt—the first in front and the second behind—both held in place by straps, fastening behind.

Experiments gave good results for the knapsack, which, being lighter, caused less trouble to the soldier and allowed him greater freedom of movements and more ease when shooting in a prone position; but the system of carrying the cartridges was not found practical, as it caused great discomfort to the soldier by the pressure on his loins and abdomen of the various sets of cartridge cases which when full were absolutely rigid; so that it was decided to give this part of the accouterment more study.

Waterproof linen knapsacks are now in course of manufacture; they are cheaper than the leather and reduced in size in proportion to the reduction of the outfit, and they have no box for cartridges, which are instead distributed in the front cartridge cases and in two pockets, one on each side, of the bread bag, which hangs from the knapsack by means of straps from the shoulders, so as to balance the weight.

The bread bag, which can be transformed into a small knapsack, is made so as to contain the reserve rations, so that, should the soldier be obliged to abandon his knapsack, he still has his ammunitions and rations.

The new knapsack with these pockets will be experimented with during the coming field maneuvers, after which a definite conclusion will be arrived at regarding them.

MILITARY EXPENSES FROM 1886 TO 1904.

The following table shows the sums spent or appropriated by the army during the period beginning with the year 1886–87 and ending with the current year 1904–5.

The expenses for Africa are included in it, but not those of the National Target Shooting Association, as they were inscribed sometimes on the war budget and others on the budget of the interior.

Year.	Expenses.		Total.
	Ordinary.	Extraordinary.	
	Lire.[a]	*Lire.*[a]	*Lire.*[a]
1886–87	217,600,000	51,600,000	269,200,000
1888–89	240,600,000	75,900,000	316,500,000
1889–90	250,300,000	152,700,000	403,000,000
1890–91	257,800,000	47,600,000	305,400,000
1891–92	252,800,000	32,500,000	285,300,000
1892–93	243,200,000	18,000,000	231,200,000
1893–94	232,600,000	12,900,000	245,500,000
1894–95	230,800,000	14,500,000	245,300,000
1895–96	225,300,000	15,000,000	240,300,000
1896–97	219,600,000	127,450,000	347,050,000
1897–98	218,300,000	16,000,000	234,300,000
1898–99	230,400,000	15,600,000	246,000,000
1899–1900	230,500,000	16,000,000	246,500,000
1900–1901	230,500,000	16,000,000	246,500,000
1901–2	230,500,000	16,000,000	246,500,000
1902–3	230,500,000	16,000,000	246,500,000
1903–4	230,500,000	16,000,000	246,500,000
1904–5	230,500,000	16,000,000	246,500,000
Total	4,432,800,000	691,750,000	5,124,550,000

—*Popolo Romano.*

[a] The value of the lire is 19.3 cents.

NEW SCOUTING RULES FOR CAVALRY.

The new temporary rules on the scouting service, drawn up last year and amended this year, were tried on a large scale for the first time during the cavalry maneuvers held during the latter part of August, 1904. These rules are based on principles diametrically opposed to those heretofore followed regarding first engagements between two cavalries. They provide that cavalry on scouting service is to take no notice whatever of the enemy's cavalry, excepting in cases where the latter may place obstacles or attempt to hamper the gathering of exact news regarding the large bodies of troops which may be in rear of the exploring cavalry. According to the rules, the superiority of cavalry in scouting is determined by the quantity and value of the information it manages to obtain, rather than by the partial successes it may gain over the enemy's cavalry.

AGE LIMITS OF OFFICERS.

According to the interpretation of an article published In L' Italia Militare e Marina (No. 100), there exist in the Italian army beyond the maximum age limit, generals of

divisions who are 65 years of age; generals of brigades who are 62; colonels, 58; lieutenant-colonels, 56; majors, 53; captains, 50; subaltern officers, 48; this without taking into account the minimum age in connection with the minimum limit of years in the service.

These minimum limits are:

	Limit of age.	Years of service.
	Years.	*Years.*
Generals of divisions	60	.....
Generals of brigades	55	30
Superior officers and chiefs	52	.....
Captains and subalterns	45	25

The law confers upon the King the authority to retire a chief or an officer before he may arrive at the age limit, but only when he may have had the years of service that are stated in the table described above.

For example, the Government may retire, against the will of the interested party, a lieutenant-colonel who may be 48 years of age and who may have had 30 years of service, but this can not be done with a lieutenant-colonel who may have the minimum age unless he shall have served 30 years in the army.

With the object of granting to a chief or meritorious officer the maximum retired pay, which is equal to four-fifths (in Germany three-fourths) of the pay to which he is entitled after having served 40 years, the Government has a law to the effect that he may be placed in the reserves.

The chief or other officer may remain in this position for eight years. If, for example, a colonel with 34 years of active service is granted retirement with the pay corresponding to the same and at the same time he passes into the reserves, after 6 years, which are counted as though spent in active service, the colonel will have 40 years of service and he may receive the maximum pay known to the law.—*Boletín Militar, December, 1904.*

JAPAN.

EQUIPMENT AND FOOD OF THE SOLDIER.

Summer kit.—In the neat blue parade uniform, jacket or tunic, plain flat brass buttons are used, but in the working kit, buttons are done away with as far as possible, fastenings being in nearly all instances carried out by means of flat hooks and eyes. The summer jacket and trousers are of khaki drill; the jacket is perfectly plain, and there are no buttons on any of the garments. A strip of white linen is issued to wind around the neck as a collar inside the tunic. The forage cap which goes with this uniform is a marvel of lightness. It has a detachable linen cover to be used in summer, from which hangs a linen screen to protect the neck. This screen being made in three parts—a center and two sides—allows the air to pass freely. For all uniforms the trousers are made like riding breeches, in that they end above the ankle, where they are made to fit tight to the limb, being fastened by tapes instead of buttons. Putties or gaiters must, of course, be worn with these. The ordinary great-coat is of thick woolen cloth with bone buttons. It has a hood which can be drawn over the head. The free edges of the front of this, as well as of the winter garment, instead of being cut straight, slope outward below the waist, making the skirt of the coat lap over more completely below; it is thus prevented from gaping in walking, and the legs and knees are protected from rain. The front of the skirt can be buttoned back to allow free movement of the lower limbs for marching in dry weather. A mosquito-net "helmet," or head covering, issued to the Japanese soldier is made of green netting, stretched on two circles of cane, so as to make a long drum with one end knocked out, into which the head is passed. The two rings of cane are kept apart by a wire spring, which allows the drum to be flattened and buttoned down for carriage.

Winter kit.—The winter tunic and trousers are made plain, like the khaki suit, but are of good woolen cloth. The "cold-proof" winter overcoat is made of thick woolen cloth. It has a large collar covered with fur, which is of course inside when the collar is raised. From the middle of the edge of this collar a cotton cap or hood can be pulled out so as to cover the head, and over this can be worn the ample detached woolen "cold-proof" hood. Hanging by cords from the neck are large gloves or mittens—one division for all the fingers and one for the thumb. They can thus be thrown off when the hand is required for firing or any other purpose without being lost. A sheepskin waistcoat with the wool outside is also issued for severe weather. It fastens at one side. The underclothing consists of a cotton shirt and drawers for summer and a thick knitted woolen jersey, or sweater, and pants for winter. The ribbed woolen stockings are made without heels, and warm toe caps are issued in the coldest weather to wear over the stockings to prevent frostbite. These toe caps are made of a lamb's wool material like very thick lint, the soft surface being inside. A roll of fine striped flannel of very good quality and about a yard and a half long is issued to be wound round the abdomen, and takes the place of a cholera belt.

Boots.—In general appearance they resemble the boot issued to the British soldier, but on close inspection they are seen to be far superior. The leather of the uppers is good and reasonably soft; the sole is thinner than that of our army boot, and is thinned off at the waist, making the boot more flexible in marching. The flat of the sole is studded with iron hobnails, and the toe and the heel have brass plates. The boots weigh 3 pounds, as against the 4 pounds of our soldiers' boots. For the temporary use of men with sore feet the soft native shoe with grass sole, such as is used by the "rickshaw" men and the people generally in Japan, is served out.

Knapsack, haversack, and valise.—The knapsack is of leather, with the hair outside, its shape being maintained by a wooden frame. The khaki-colored hemp haversack is divided lengthwise to form two compartments, and resem-

25880—No. III—05 M——10

bles somewhat the haversack carried by our officers. A useful addition to the slings supporting it from the opposite shoulder is a short strap fixed in the center of the top of the sack, with a hook to fix on the waistbelt, and thus take off some of the weight from the sling. For carrying additional small articles of clothing the soldier has a long sack about 9 inches in width and 6 feet long, open at each end, and stitched across at its center, so as to make two bags. It is worn over one shoulder like a bandolier, the ends being tucked under the waistbelt at the opposite side. The water bottle, canteen, and mess tin are of aluminum, the first two being blackened outside; the canteen fits inside the mess tin like a tray. The rice ration is carried in the small grass box in front of the mess tin. The copper Chinese camp kettle is a very practical contrivance. It has double sides; the water poured into the outer jacket is heated by burning charcoal in a small stove in the center of the vessel, air being admitted by the lateral aperture near the bottom, through which also the ashes can be extracted. With this water can be boiled even in a gale, and the Japanese soldiers have realized its value in campaigning and use it very generally.

Food.—Of the various samples of food, the rice ration ready boiled, and the biscuits—consisting of wheat and rice flour, with a few grains of millet seed to prevent it from becoming too hard—are especially notable. Vegetables of various kinds—sliced potatoes, carrots, beans, sliced gourd, etc.—are thoroughly dried, thus insuring preservation and diminished weight. Tea and salt are both in solid cakes or cubes, and various meats and fish are in hermetically sealed tins. Even fodder for the horse is prepared, like the vegetables for the men, by drying.

Stretchers.—In addition to these articles of outfit and food, Miss McCaul has brought over two military stretchers, which are worth close and detailed inspection. The poles are of bamboo, and the weight of the stretcher complete (12 pounds) compares favorably with the much heavier stretcher in use in the British army. The supports or runners are particularly ingenious and simple—when the stretcher is folded they double on to the poles, but when it is opened their weight causes them to fall perpendicularly under the

framework of the stretcher, and a loose metal ring then slides down and locks them in position. A metal frame at each end of the body of the stretcher supports a cover at a comfortable height above the patient. Each transverse comes in two in the center, and the cover frames or supports are hinged in the center for folding.—*Journal of the Royal United Service Institution.*

DETAILS OF THE JAPANESE SOLDIER.

An exhaustive letter from Tokyo, which the Cologne Gazette recently published, and from which we take the following data, gives some interesting details of the Japanese army:

On Wednesday afternoon there is no military duty. Excluding those on guard, every soldier can leave the barracks, wearing the extra caps provided by the regiment. From the smaller garrison places excursions are sometimes made, but in general the Jap soldier off duty does not care to go much. He prefers to sit around, since it is only students who make excursions into the country. In Tokyo, only the Guard Cavalry Regiment has its barracks within the city, close by the palace and park of the Mikado. All the other regiments are in the suburbs—some regiments, indeed, far outside. When the soldiers quartered in the suburbs are off duty, they go into the city, preferably to relatives to spend with them in their homes the whole day or afternoon. Those who have no relatives in Tokyo hire, in groups of from 10 to 20 men, a room in the vicinity of their barracks, in order to make themselves comfortable there and to live familiarly until the time to return to barracks, 8 p. m. at the latest. They drink sake (rice wine) and beer, not too much, for the drunken soldier is heavily punished.

The punishments of the soldier consist either in arrest or in standing upon a board or table till he confesses what he is suspected of; or in the omen (short *o*), a hard blow on the back administered by a subofficer. All soldiers are divided into three classes, which in general coincide with the three service years. Yet the passage into the next higher class depends upon capacity and leadership. The soldier who does well receives a two-week furlough in three years. Exceptions

arise in case of death or other important events in the family. No permission is given to engage in gainful pursuits.

Uniforms are simple. There is only one kind of cavalry. The cavalryman wears red trousers and black coats. In summer the whole army is clad in khaki, which was introduced in place of the white clothing after the experiences of the war of 1894–95. As then the green-clad Chinese riders, mounted on white horses—they were the Manchurian cavalry regiments, which are said to be now, as irregular cavalry, fighting under Jap officers against the Russians—were clearly seen at great distances in the battle of Ping Yang and offered an excellent target, the Japs were convinced that they themselves, in their white summer clothes, would be observed at great ranges.

Turning and marching are diligently practiced. Marching is easy to the Jap from birth, even if he does not care to go much when off duty. But turning was, a little while ago, almost unknown in Japan, introduced at first unwillingly as a dangerous sport, and conducted for a long time by the subofficers rather crudely. But this has all improved so that the soldier to-day gladly turns. Night exercises are frequent. As in the navy, so in the army, they are held once a week. In all arms they pay great attention to target practice. Estimating distances are constantly practiced. Finally be it accentuated that the officers train the men to the utmost possible independence.

The one-year volunteer, who, as with us, wears the black and white band, pays on entry the entire amount for clothing, food, and, in the cavalry, for forage; is compelled for a time, possibly three months, to live in barracks; may later hire a private house. The authorization for one-year service is conditioned upon a graduation examination from the middle school.

On mobilization the whole army simplifies its uniform, already simple. The infantry officer takes off his black breast straps, which distinguish him from the privates and noncoms; the whole cavalry takes off its red, and the artillery its yellow straps. Thereby the officer can not be distinguished at a distance from the men and is not in special danger of becoming a special target of the enemy. In the warm season, as already mentioned, the whole army wears

khaki. On mobilization each soldier receives a red woolen blanket and a second pair of leather shoes (cavalry and artillery long boots) which are strapped onto the knapsack. The roads in North Korea and Manchuria are few and bad. Straw sandals will not do there; and the soldier rarely has time to make them (making a single pair requires two to three hours), nor the necessary skill (for only country people are accustomed to this work), nor the necessary material (for only rice straw can be used). And to give them greater life (the sandal) they like to give them an admixture of cloth torn in strips. In his knapsack the soldier carries dried rice, some salted plums, and with it a bamboo tube with water. The company distributes, in addition, dried and pressed vegetables, dried fish, preserved meat, strongly compressed schoju (bean extract), as well as rice, wine, and cigarettes in small quantities. The new cooking utensils are yet an official secret. It is claimed that it is made of paper and made fireproof by a chemical process. It is carried in the knapsack.

The recently organized field post does its work satisfactorily, yet the letter exchanges are subject to a strict control of secrets. The mobilized soldier must not state to what regiment he belongs nor where he was embarked. He can write from the field, but only by omitting all statements of time and place. The letters from home addressed to him receive their detailed address from military boards.—*The International Review.*

THE JAPANESE FIELD GUN.

The field gun used by the Japanese in the present Russo-Japanese war, which has now already stood its "fire trial" in more than one battle, belongs, like the Japanese mountain gun, to the Arisaka system.

It is not exactly a rapid-fire gun, but must, like the German field gun, model 96, be numbered among the accelerated fire guns, since it requires, on account of the recoil of the entire carriage and the imperfect return of the barrel after firing, a relaying, and, besides, because the nature of the breech lock requires two movements for opening and closing it. In the Japanese drill regulations the rapidity of fire is given as

4 to 5 shots per minute for 1 gun, and 15 to 20 shots per minute for a battery of 6 guns.

The barrel is a jacketed barrel; that is, a gun barrel inclosed from muzzle to breech in a jacket shrunk on when heated and which carries on an overlaid band the trunnions, whose prolongations serve at the same time as axles. The drawn steel barrel is painted a zinc color. On the upper side of the rim of the breech is a flattened place, the pointing arc plane, and on the right side a vertical socket, which serves to receive the rear sight. This may be pushed up and down as desired and is fixed in any position desired by means of a screw. On the under rear side of the breechblock there are two horizontal eyes, between which is situated a corresponding eye of the breechblock, which is closed by means of a bolt. Thus the opening of the breech is effected to the rear and downward.

The breech mechanism consists of the breech frame, the block, which is hinged to the breech of the barrel by means of the above-mentioned bolt; of the breech screw, and breech crank, a lever with a horizontal and vertical arm. The opening of the breech is effected by means of two motions, one turn of the breech crank and the drawing of the breech frame and screw to the rear. By this means the frame assumes a horizontal position and is kept therein by means of a special support. The closing is effected in the reverse order. The vent is wedge shaped. The breech screw is bored through horizontally for receiving the firing mechanism; the firing mechanism consists of the firing pin with the striker, the firing-pin spring, and the trigger proper. The firing-pin spring is compressed by the closing of the breech; if the breech is not completely closed the firing is prevented. The case of the cartridge after firing is thrown out by an ejector, which is situated in the barrel and actuated by a rotating cog, when opening the breech.

The carriage consists of two flasks of pressed steel, whose upper edges are bent inward, exactly as in the case of our field gun. In the cheeks there are two recesses, corresponding to the trunnions, which are strengthened by special reenforcements for the purpose of receiving the latter; since the prolonged trunnions also form the axles of the carriage, the

wheels are put on them from the outside. Their diameter is 1.4 meters, and the height of the trunnions is consequently 0.7 meter.

On the outside of the right carriage flask is the laying gear for obtaining the elevation. The traversing gear, like the one we have in our field artillery, is naturally impossible, since the trunnions, which are attached to the barrel, are axles besides.

The traveling brake is placed on hanging metal straps between the carriage flasks; the firing brake is situated on the rear part of the carriage, just in front of the pintle eye.

The firing brake, in connection with the wheel shoes, which take the place of the spade, serve to diminish the recoil and bring the gun forward after the recoil has ceased to act. Its arrangement is as follows: The inner side of the metal nave of the carriage wheels is provided with a groove, in which runs a galvanized wire rope, which is fastened by one end in this groove and by the other to a crosspiece of the buffer bolt. This crosspiece can move forward and backward in a slit in the carriage flasks, whereby the buffer—the so-called Belleville buffer—is compressed and released. The wheel shoes are hung on the axle by means of hanging straps and chains and consist of the sole, which grips the rim of the wheel, and two spade-shaped projections, directed downward, which on the recoil of the wheels dig into the ground.

When firing a shot, or rather immediately after, the process is as follows: At the beginning of the recoil the wheels turn and run up on the shoe brakes, pressing these into the ground. Simultaneously herewith the wire ropes of the firing brakes coil themselves on the wheel naves, whereby the crosspiece of the buffer bolt is carried forward, the Belleville spring compressed, and the recoil checked; or, what really takes place, the turning of the wheels is stopped. Through this the sliding backward of the carriage is prevented by the wheel shoes, which have been pressed into the ground. As soon as the strain on the ropes ceases the Belleville spring extends again and pushes the whole forward. The recoil amounts, on the average, to 0.5 meter. Although the gun is returned after firing, it does, however, not always run forward to the same place in which it stood when firing

the shot. It must, therefore, be relaid for every succeeding shot.

The Japanese field gun fires the following projectiles: (*a*) A shrapnel with a double-action fuse; (*b*) a high-explosive shell with a base fuse.

The shrapnel is a case shrapnel with a screwed-on head. It has a length of 3.35 calibers and weighs 6 kilograms. The number of bullets, made of hard lead, is 234. After the bursting charge, which consists of black powder, is inserted, we have to deal with a tube shrapnel. The black powder has, as known, in this case the advantage that it produces when the shrapnel bursts a cloud of smoke, which facilitates essentially the observation, while it may besides, with a proper position of the points of burst, make really difficult the observation for the enemy's artillery fired on.

The high-explosive shell is made of steel, and has likewise a screwed-on head. In the base there is an opening for receiving the base fuse. The shell weighs 6.1 kilograms and has a length of 4.47 calibers. The bursting charge amounts to 800 grams of yellow powder (in all probability of melinite or picric acid).

Nomenclature.	Field gun.	Mountain gun.
Caliber	75 millimeters	75 millimeters.
Length of barrels	2.2 meters	1 meter.
Length of bore	1.8575 meters	0.8 meter.
Number of grooves	28	28.
Angle of twist	7°	7°.
Depth of grooves	0.75 millimeters	0.75 millimeter.
Diameter of the wheels	1.4 meters	1 meter.
Height of the trunnions	0.7 meter	0.5 meter.
Height of the line of sight	900 millimeters	700 millimeters.
Length of the line of sight	700 millimeters	400 millimeters.
Value of a graduation on the rear sight and pointing arc.	1/1000 of range	1/1000 of range.
Value of a graduation on the horizontal pointer.	8/1000 of range	8/1000 of range.
Weight of the shrapnel	6 kilograms	6 kilograms.
Weight of the bursting charge	92 grams	92 grams.
Number of bullets	234	234.
Weight of a bullet	10.7 grams	10.7 grams.
Diameter of a bullet	12.5 millimeters	12.5 millimeters.
Weight of the shell	6.1 kilograms	6.1 kilograms.
Weight of the bursting charge	800 grams	800 grams.
Initial velocity	457.5 meters	274.5 meters.
Width of wheel tracks	1,200 to 1,300 millimeters.	700 millimeters.
Weight of the barrel	316 kilograms	100 kilograms.
Weight of the breech block	16 kilograms	
Weight of the carriage with the barrel	846 kilograms	290 kilograms.
Limits of elevation	−11° to +19°	−10° to +30°
Weight of the charge	450 grams	

The charge is placed in a brass cartridge case, which is carried separated from the projectile and is, according to the information received so far, not united with the projectile until loading.

Of laying gear there are at hand the rear sight and the pointing arc. The rear sight is a bar sight with an elevating screw. On the right side of the sight bar are placed a scale of distances from 200 to 6,200 meters and a degree scale graduated from 0° to 20°. The rear sight is inserted into the rear sight socket, situated on the right side of the barrel, and has already been mentioned above.

As is shown by the foregoing table, which contains the most important numerical data concerning the field and mountain gun, the mountain gun differs from the field gun in some points only. The length of the barrel is only 1 meter as against 2.2 meters in the case of the field gun; the carriage consists of two parts, which are telescoped in each other and fastened by means of a bolt; the Belleville springs are replaced by spiral springs, and the traveling brake is lacking.

The mountain gun is transported on four pack animals, in which case the two parts of the carriage are taken apart and packed on two pack animals. To each gun belongs, besides, still a fifth pack animal for the ammunition and equipment.—*M. I. D. 800–m.*

THE JAPANESE WAR BUDGET FOR 1905.

The budget as passed by the two Houses of the Imperial Diet on December 28, 1904, was published as follows in the Official Gazette of January 1, 1905:

Ordinary revenue.

	Yen.[a]
1. Tax	196,101,843
2. Stamp revenue	18,440,727
3. From Government undertakings	74,112,893
4. Miscellaneous receipts	2,209,870
5. Interest on deposits	4,290,833
6. Formosan bonds, redemption funds	1,742,595
Total ordinary revenue	296,898,761

[a] The value of the gold yen is 49.8 cents.

Extraordinary revenue.

	Yen.
1. Sale of Government property	745, 503
2. Miscellaneous receipts	3, 521, 052
3. Local payment to administrative expenses	833, 308
4. Appropriation from indemnity fund	72, 347
5. Appropriation from forestry fund	550, 967
6. Contributions	1, 600, 000
7. From account preceding fiscal year	112, 000
Total of extraordinary revenue	7, 435, 237
Grand total of revenue	304, 333, 998

Ordinary expenditures.

1. Imperial household expenses	3, 000, 000

FOREIGN OFFICE.

1. Department proper	164, 755
2. Legations and consulates abroad	2, 173, 708
Total	2, 338, 463

HOME AFFAIRS.

1. The Shrine of Ise	50, 000
2. All other shrines	223, 930
3. Department proper	330, 083
4. Sanitary laboratory	44, 298
5. Epidemic disease laboratory	167, 220
6. Metropolitan police board	234, 916
7. Hokkaido board of administration	631, 321
8. For *Fu* and *Ken*	7, 331, 273
9. Local expenses	228, 961
Total	9, 302, 002

FINANCE DEPARTMENT.

1. Department proper	247, 979
2. National debt	35, 883, 964
3. Pensions and annuities	8, 092, 781
4. Cabinet	224, 417
5. Privy council	132, 393
6. House of Peers	640, 534
7. House of Representatives	860, 335
8. Board of audit	170, 508
9. Administrative litigation court	45, 510
10. Custom-houses	696, 664
11. Collection of home taxes	3, 519, 409
12. Civil-service examinations	3, 475

	Yen.
13. Expenses for official reprimands	932
14. Expenses in financing	881,268
15. Payment of deficits	1,529,552
16. Tobacco exports	262,942
17. Camphor and camphor oil monoply	854,409
18. Inspection of sake and soy manufacture	38,929
19. Expenses of port of Yokohama	110,307
20. Fund for war ships and torpedo boats	6,599,722
21. Reserve fund	2,000,000
Total	62,796,030

WAR OFFICE.

1. Department proper	254,767
2. Military expenses	38,653,003
3. Gendarmes	580,426
4. Contributions to Shrine of Yasukuni	7,550
Total	39,495,746

NAVY DEPARTMENT.

1. Department proper	158,078
2. Naval expenses	23,797,187
Total	23,955,265

DEPARTMENT OF JUSTICE.

1. Department proper	120,333
2. Law courts	4,879,406
3. Local prisons	5,178,955
Total	10,178,694

DEPARTMENT OF EDUCATION.

1. Department proper	382,816
2. Seismological investigation	19,528
3. Geodetic committee	7,924
4. Central meteorological observatory	44,282
5. Latitude surveying office	6,034
6. Examinations for physicians and apothecaries	71,615
7. Schools and libraries	2,720,775
8. Salaries of normal school directors	65,251
9. Elementary education, State aid	1,000,000
10. Practical education encouragement	320,000
Total	4,638,225

DEPARTMENT OF AGRICULTURE AND COMMERCE.

	Yen.
1. Department proper	315,926
2. Monopoly bureau	74,530
3. Forestry office	1,117,085
4. Mining inspection office	163,974
5. Experimental farms	172,678
6. Fisheries school	68,341
7. Sericultural school	98,389
8. Silk conditioning houses	53,087
9. Stud farms	307,544
10. Improvement of cattle breeding	79,789
11. Industrial laboratory	39,242
12. Inspection expenses	10,721
13. Subsidies	212,200
14. Matting inspection office	30,119
Total	2,743,625

DEPARTMENT OF COMMUNICATIONS.

1. Department proper	575,884
2. Communications	18,409,457
3. Nautical signals	304,932
4. Ships' crews	157,389
5. Mercantile marine school	117,431
6. Hokkaide railway undertakings	1,047,679
Total	20,612,772
Grand total ordinary expenditures	179,060,822

Extraordinary expenditures.

FOREIGN DEPARTMENT.

1. Repairs	$21,625
2. Legation and consulate removal expenses	4,000
Total	25,625

HOME DEPARTMENT.

1. Subsidies	1,065,047
2. Civil engineering work	1,165,544
3. Construction and repairs	228,128
4. Office of the Shrine of Ise	80,530
5. Tree planting in Ogasawara Islands	5,288
6. Pharmacy investigation expenses	6,191
7. Hokkaide local expenses	520,000
8. Hokkaide development expenses	148,753
Total	3,219,481

FINANCE DEPARTMENT.

	Yen.
1. Subsidies	794, 715
2. Issue of public loan bonds	30, 040
3. Construction and repairs	69, 156
4. Investigation of capitalized pension bonds	40, 207
5. Principal and interest on Chinese bonds	3, 066, 636
6. Compilation of census statistics	5, 384
7. Reserve	1, 300, 000
8. Capitalized pension bonds	500, 000
Total	5, 806, 138

WAR DEPARTMENT.

1. Fort construction	406, 594
2. Construction and repairs	66, 000
3. Survey bureau expenses	140, 503
4. Initial equipment	327, 925
5. Suppression of Formosan banditti	20, 000
6. Compilation of war record	45, 934
7. Special allotment	12, 771
Total	1, 019, 727

NAVY DEPARTMENT.

1. Construction and repairs	35, 800
2. Special allotment for construction and repairs	40, 784
3. Naval expansion	72, 347
4. Temporary construction bureau	16, 450
5. Compilation of charts	7, 343
6. Kure arsenal extension	1, 484, 750
7. Naval construction store fund	8, 547, 227
Total	10, 204, 701

DEPARTMENT OF JUSTICE.

1. Construction and repairs	65, 221

DEPARTMENT OF EDUCATION.

1. Construction and repairs	167, 550
2. Equipment	8, 900
3. New medical college	137, 986
4. New Second Higher Normal School	39, 662
5. New Third Higher Commercial School	23, 000
6. New Fourth Higher Industrial School	24, 000
7. New Imperial Library	20, 060
8. Histographical compilation	20, 464
9. Extraordinary school expense	24, 809

	Yen.
10. Extraordinary surveying expense	8,000
11. Teachers' schools	30,000
12. Expense for Chinese students	14,880
Total	519,311

DEPARTMENT OF AGRICULTURE AND COMMERCE.

1. Foreign trade extension expense	72,000
2. Establishment of metal foundry	1,599,840
3. Encouragement of ocean fisheries	57,772
4. Subsidies	55,000
5. Construction and repairs	52,500
6. State forestry undertakings	550,967
7. Education inspection	7,640
8. Improvement of horses	16,171
9. St. Louis Exposition	13,368
10. Metal foundry fund	1,000,000
11. Inspection of fisheries	29,639
12. State forestry work	276,904
Total	3,731,855

DEPARTMENT OF COMMUNICATIONS.

1. Subsidies	4,738,962
2. Telegraph and telephone construction	200,000
3. Construction and repairs of nautical signals	1,078
4. Construction repairing	110,807
5. Improvement of Government railways	250,133
6. Railway construction expense	1,353,554
7. Hokkaide railway construction	217,021
Total	6,871,555
Grand total of extraordinary expenditures	31,463,614
Grand total of ordinary and extraordinary expenditures	210,524,436

RIFLES AND FIELD GUNS.

The Srefleurs Militärische Zeitschrift publishes the following details with regard to the quantity of war materiel (rifles and guns) which the Japanese army can dispose of:

Rifles.—The number of the 1897 model rifles was, at the beginning of 1903, of 280,000 rifles—that is as many as were necessary to equip the army of the first line and the reserve troops.

This rifle—Meiji model—is of the 6.5-millimeter caliber;

it has a 5-cartridge clip; it weighs, with bayonet dagger, 4.9 kilograms, and has an initial velocity of 725 meters.

As the two Jananese arsenals could turn out from 900 to 1,000 of these rifles a day, so Japan could now have about 400,000 of them—that is, enough to arm the territorial army also. But it appears that this has not been done, as the Russian surgeons have noted that some wounds were made by the old 7.5-millimeter rifle. This model is the Mourata repetition model, with 8-cartridge clip, weighing, with bayonet dagger, 4.5 kilograms, and of the initial velocity of 610 meters. There were 500,000 of these rifles in existence, and the depots and territorial troops must have had them.

Besides, Japan still possesses in old models 100,000 11-millimeter Mouratas, 150,000 Peabodys, and 50,000 Remingtons.

Guns.—At the beginning of 1903 there were in existence of the 1898 Ariska model, 7.5-centimeter accelerated fire without shields, 620 field pieces, and 360 mountain pieces—that is, a total of 980 pieces.

In the spring of last year 50 field guns and 50 mountain guns were added to these, so that the number of pieces reached 1,080; which number must certainly have been increased since.

The needs of the army of the first line required 702 pieces; those of the reserve, 78; the depots, 114; a total of 894 pieces. Therefore only 186 pieces of the more recent model remained for the territorial troops, while they really need 312. It is therefore probable that at least part of the territorial troops is still armed with guns of the oldest model.

THE JAPANESE ARTILLERY.

It was not alone the Russian diplomatists who were surprised at the suddenness of the outbreak of the present war; the army was not ready in any respect for this campaign. The Russian artillery especially was undergoing one of those phases of change of armament which can not be undertaken without peril when a crisis is imminent.

The readers of La France Militaire are already acquainted with the respective situations of the belligerents caused by the conditions of their artillery. The Russian piece, model 1900, had not yet replaced the older armament in all the

corps, but it is certain that the batteries of the extreme Orient were equipped with it. This gave a technical superiority to the Russian artillery over that of the Japanese.

But in war in a broken country, such as that from the bank of the river Yalu up to Moukden, the Japanese took advantage of rapidity and facility of movement made possible by their strong organization and their mountain artillery.

Considered in the abstract, the mountain piece is inferior to the field piece. But in the miry soil of Manchuria, on the frontier of Korea, among the mountains of the south, bristling with obstacles, impassable for heavy pieces of large caliber, the lightness of the mountain gun was a precious advantage, compensating for its faults of structure and range. With a power theoretically less, the practical advantage was greater.

In artillery tactics the Japanese were brilliantly successful, especially in the beginning of the campaign.

It has been maintained that in this success could be detected the action and result of certain contributory conditions, and recently a Russian officer returning from the Far East declared that the effectiveness of the Japanese fire was due to the value of their optical instruments. But it seems that aside from these secondary causes there is one reason more essential. In the instruction of the artillery the Japanese general staff laid particular stress on the choice of position.

In the regulations for the field artillery fire, which were partially inspired by the instructions of the 19th of August for the German field artillery fire, and which were approved by the Japanese minister of war in March, 1902, a whole chapter is devoted to this question. At all events this goes to show how fertile for the Japanese in regulations and military organizations was the period between the Chinese expedition of 1900–1901 and the Russo-Japanese war, and which, in fact, was a phase of the minute preparation for the present war.

The citation of the text itself, rather than of extracts, will be of value in this study.

The choice of position depends upon topographic condi-

tions. In every case, in order that a position be advantageous, it is necessary that the following conditions be fulfilled:

First. It is necessary that the position offer a good field of fire—as large as possible.

Second. The terrain separating the position of the hostile forces should be entirely open.

Third. It is necessary that the position itself should not be contracted, but should have a sufficient width and depth.

Fourth. The front of the position should be perpendicular to the direction of fire.

Fifth. It is necessary that the soil of the position should offer great resistance.

Sixth. The occupation of the position should not be surrounded by great difficulties.

Seventh. The resupply of ammunition should be effected easily.

Eighth. It is essential, finally, that the position offer protection against the fire of the enemy, as well to the batteries themselves as to the ammunition columns and the train.

It is, in reality, extremely difficult and many times impossible to find a position combining all these conditions. On this account it is that the opportunity of striking a decisive blow at the enemy from any position whatever should not be sacrificed to the search for such a perfect position.

It is therefore best to make the choice of a position dependent upon the conditions of the engagement and especially upon the dimensions and nature of the objective and upon the disposition of one's own troops.

All these conditions, upon which the choice of a position depend, give great significance to the minute study of the terrain, and it is extremely important to make a reconnoissance beforehand.

It is also necessary at the same time to take all possible measures to conceal this reconnoissance, for it is necessary that the enemy should not know or even have a suspicion of the positions intended for our batteries.

It is for this reason that the order is given to make these reconnoissances not only by detachments of cavalry but also by the infantry.

25880—No. III—05 M——11

When important units are under consideration, one part of the artillery places itself in advance of the main position and entrenches itself in a masked terrain (artillery advance guard).

To each battery of 6 pieces should be given an emplacement not less than 40 meters and not more than 100 meters. The intervals between the batteries vary from 20 to 40 meters.

It would seem that the Japanese general staff, in elaborating this theory of positions, wished to leave nothing to choice; these precise precepts resemble commands. And, nevertheless, it is recognized that any method, however rational, should admit of adaptation to circumstances of time and place and that no rigid doctrine should suppress individual initiative and freedom of judgment. The selection of a perfect and ideal position may serve as the theme of a maneuver, but on the field of battle the theoretical perfection of a movement should not be regarded to the neglect of practical contingent results, or, as the Japanese instruction expresses it "the opportunity to deal, from any position whatever, a decisive blow to the enemy."—*La France Militaire.*

THE USE OF ARTILLERY BY THE JAPANESE.

The Japanese profit very skillfully by all the advantages offered by the artillery, chiefly by the hidden positions and the concentration of the fire. The hidden positions, with which our artillerists have practically made first acquaintance at the beginning of the campaign, have rendered good services to our enemies and have long been a stumbling-block for us. Being accustomed to high-artillery positions, not finding the disposition of the Japanese batteries, some of our commanders have much advanced their artillery, which was very profitable to the enemy, as it annulled the advantage of 1 verst of the range of our battery against the Japanese, which, nevertheless, remained invisible. According to the principles of the Japanese fire tactics, their artillery formed the so-called "great battery," concentrating the fire, from the very beginning of the fight, on the enemy's position in order to gain at once, not only material, but also moral advantage. Lieutenant-Colonel Vineken, of the general staff,

an expert of Japanese tactics, states that, for instance, under the mountain Shautanpoo they concentrated 180 infantry and 18 cavalry guns; under Dashichao a detachment of Maxim guns was even added. But such mode of action is not liked by many of our directors of battle. Lieutenant-Colonel Paschenko, a well-known connoisseur and practical artillerist, states in one of his articles in the Manchurian Viestnik No. 137:

"The hidden positions continue to rouse some doubts in the infantry commanders—not artillerists, it is true—who are not well satisfied with such positions. They say: 'We want only such artillery as is able to fire from any position to where I shall order the guns, which would always be directly behind its infantry, and not 2 to 3 versts behind it, etc.'"

Such commanders can not and will not understand that nowadays the quick-firing artillery is a machine which requires knowledge and direction, management mechanically by means of telephones, telegraphs, and not by means of signalmen. One of the commanders said: "You are a coward," when one of the battery commanders reported to him that the position chosen was "unsatisfactory, impossible, that it had to be removed 2 to 3 versts back." As an artillerist Pashchenko admits that the commanders do not know the principles of the quick-firing artillery, and ascribe it exclusively to generals who are nonartillerists. He takes the part of his own arm, but he is not quite right; he does not wish to acknowledge that the artillery generals are also not always at their height; for instance, one of the chiefs of the corps artillery placed his battery on hills, hillocks, and such other elevations, i. e., on the palm of the Japanese, because he does not admit hidden positions, and declared that the artillery is only a frightening element.

Further, we ought to compare how differently we and the Japanese understand the artillery reserve.

Whereas the Japanese move forward to the battle line their whole effective artillery, without reserves, considering that the artillery reserve are the parks and shells and an uninterrupted supply of the latter, we do just the reverse, leaving in the reserve fresh batteries, and, moreover, so far off that it is very difficult to attract them in the necessary

time. Such was the case on October 1–2. A severe battle on the Shakhe. We became feeble. After the division of Smolensky the Third Brigade perished. The Division remained without artillery, and at the same time, in Mukden, 30 versts behind, were four fresh untouched batteries, with a full amount of ammunition.

The principle of the mutual aid is also differently considered by us. Whereas the Japanese profess it as an unmistaken theory, we are guided by the question, Do they belong to us or not? During the Laoyan battle the artillery of the "NN" Corps was out of ammunition; only two rounds were left per gun. An orderly gallops to the commander of the next corps, which has not spent a single cartridge out of its parks. "Excellency, aid us; we have no more cartridges." The General got angry. "You are not of my corps; I am not obliged; we may ourselves remain without cartridges." They were given only thanks to orders of the chief of the corps.

Further, where are our parks placed? At a distance of 12 to 16 versts. And nobody seems to think that the modern artillery can spend its whole supply in some 2 hours and remain whole hours without any supply. Thus it was on July 18 in the detachment of General Mischenko, when, according to orders of the respective authorities, the parks remained 12 versts behind the line of the ammunition carts—moreover, separated by a difficult pass—although they ought to have been at a distance of 6 to 7 versts from the line of the fire. It is most probable that many persons understand this inconsistency, but can not change it.—*Novæ Vremya, January 22/February 4, 1905.*

DAMAGE TO JAPANESE VESSELS IN BATTLE OF AUGUST 10, 1904.

It now appears that the *Mikasa* did not have a plate knocked out of her, as first reported. On the other hand, she was hit very frequently, indeed, and a correspondent who had the good fortune to see her just after the battle tells us that she looked much like the *Belleisle* after her battering by the *Majestic* some years ago. The Russians seem to have got her in all her tender places. On the other hand, no other Japanese battle ships were hurt, and had but a hit apiece.—*The Engineer.*

NETHERLANDS.

THE NEW FIELD GUN.

The Netherlands Government has adopted, for its new field artillery armament, the Krupp gun with hydraulic brake, spring recuperator, and shields. The gun selected is similar to the one already ordered by the Swiss Government, but has a slightly higher initial velocity, viz, 500 meters instead of 485 meters; on the other hand, the weight of the projectile is less, being 6 kilograms instead of 6.35. The materiel ordered consists of 204 guns and 408 wagons. Further, 200 ammunition wagons for parks will be obtained by transforming the existing serviceable wagons; the latter, as well as the manufacture of a portion of the ammunition, will be carried out by the home workshops. The total expenditure will amount to 14,000,000 francs, about one-fifth of which will be spent in the national industries.—*United Service Magazine.*

PORTUGAL.

NEW FIELD GUNS.

In accordance with the advice of the artillery experimental commission, the Portuguese Government have recently placed a contract with the Schneider firm for the supply of 36 quick-firing field batteries, of 4 guns and 8 ammunition wagons, or altogether 144 guns and 288 ammunition wagons; 2 batteries must be delivered by the 9th of December next, 12 by the 9th of May, 1905, and 22 by the 9th of May, 1906. Each battery is to be composed of 4 guns, with gun carriages, and a supply of 1,000 rounds, 800 of which are shrapnel and 200 common shell, per battery.—*United Service Magazine.*

ROUMANIA.

NEW FIELD GUNS.

The Roumanian Government has recently ordered from the Krupp firm 300 quick-firing guns of the 1904 model, decided upon by the artillery experimental commission, 900 ammunition wagons, 75 forges, and 75 battery wagons, 300 shrapnel and 200 common shell per gun. The field artillery, which at present consists of 64 batteries of 6 guns, or 384 guns altogether, will in future consist of 75 batteries of 4 guns each. The Krupp material should be delivered with a maximum delay of 2½ years.—*United Service Magazine.*

RUSSIA.

ORGANIZATION OF MACHINE-GUN COMPANIES IN 1904.

In 1901 the Russians organized for a term of three years, five companies of machine guns, which were assigned to infantry divisions, and a brigade of chasseurs. At the completion of the experiment an Imperial order of September 13 (26), 1904, fixed the organization of these companies. We give a résumé of this organization below:

Machine-gun companies are divided into field and mountain. The former are made up of 8 Maxim guns, caliber 7.6 millimeters (0.30″), like the Russian rifle, with carriage and two-horse limber and 8 one-horse caissons.

The mountain companies have likewise 8 Maxims, but they are carried on pack horses. The ammunition is carried by 8 pack horses and 8 one-horse caissons.

In time of peace the companies have horses for only 4 guns, with 4 pack horses in the mountain companies.

The gun detachment consists of 1 noncommissioned officer, 1 gunner (Gefreite), and 2 cannoneers.

The allowance of ammunition is not given; it used to consist of 5,850 cartridges per piece in 13 belts of 450 each, of which 3 belts were carried in the limber and 10 in the caisson.

The reserve train of each company consists of 9 one-horse wagons, of which 2 carry spare parts; 1 is the forge for the horses and matériel, 1 carries officers' baggage, 5 are ration and baggage wagons for the men, with 1 two-horse field kitchen.

The machine-gun companies are attached to infantry divisions or to brigades of chasseurs. They take the number of their division or brigade, and belong, for purposes of administration and preparation for war, to one of the regiments of the division—preferably to one which is stationed near the headquarters of the division—and are placed under the orders of the colonel commanding the regiment, without forming part of any battalion.

The captains of the machine-gun companies, nominated by the division commanders from among the candidates that have shown the most familiarity with target practice, or from the most deserving company commanders, are designated in general orders. The other officers are selected by the division commander from the regiments under his command.

Each company is entitled to a Feldwebel (sergeant) and two reenlisted noncommissioned officers.

The noncommissioned officers who are candidates for machine-gun companies form part of the special instruction detachment of the regiment.

Recruits are selected from those assigned to the artillery. They must have excellent eyesight and a vigorous constitution, and know how to read and write.

The remount service is the same as that of the artillery. The administration of the machine-gun companies is the same as that of the other companies of the regiment; they take part in all regimental drills and instruction. They may be sent to a target range for their machine-gun practice.

The following tables give the organization, in detail, of the personnel, material, and animals of a machine-gun company, beginning with the year 1904:

Personnel of a machine gun company (1904).

	Field company.		Mountain company.	
	War.	Peace.	War.	Peace.
OFFICERS.				
Company commander (captain or lieutenant-colonel)	1	1	1	1
Officers	4	3	4	3
ENLISTED MEN (COMBATANTS).				
Feldwebel (sergeant)	1	1	1	1
Noncommissioned officers.				
Chiefs of section	8	8	8	8
Chiefs of caisson	1		1	
Armorer	1	1	1	1
Trumpeters	2	1	2	1
Cannoneers assigned—				
To the guns	24	24	24	24
To the ammunition packs			8	4
To the caissons	8		8	
Mounted men and drivers assigned—				
To the guns	8	4	8	4
To the ammunition packs			16	
To the caissons	8		8	
Drivers for the spare horses, orderlies, and other special-duty men (cook, baker, etc.)	20	15	20	15

Personnel of a machine gun company (1904)—Continued.

	Field company.		Mountain company.	
	War.	Peace.	War.	Peace.
ENLISTED MEN (NONCOMBATANTS).				
Hospital attendant	1	1	1	1
Artificers	3	3	3	3
Teamsters:				
Spare-part wagon	2		2	
Forge	1	1	1	1
Officers' baggage wagon	1		1	
Company baggage wagons	5		5	
Driver for field kitchen	1		1	
Total enlisted men	95	59	119	63

The enlisted men are armed with carbine and bayonet.

Allotment of horses for machine-gun company (1904).

	Field company.		Mountain company.	
	War.	Peace.	War.	Peace.
Saddle horses:				
Officers' horses	5	4	5	4
Men's horses—				
Feldwebel (sergeant)	1		1	
Noncommissioned officers	8	4		
Drivers	1		1	
Trumpeters	2	1	2	1
Spare saddle horses	1		1	
Team and pack horses:				
Caissons	8		8	
Spare horses	2	1	3	1
Draft horses for wagon train:				
Spare part wagons	2		2	
Forge	1		1	
Officers' baggage wagon	1		1	
Company baggage wagon	5		5	
Field kitchen	2	2	2	2
Spare horses	1		1	
Materiel	56	20	56	16
FIGHTING BATTERY.				
Maxim guns with carriages	8	4	8	4
Two-horse limbers	8	4		
Pack horses for guns			8	4
One-horse caissons	8		8	
Pack horses for ammunition wagon train			16	4
Spare part wagons	2		2	
Forge, etc	1		1	
Officers' baggage wagon	1		1	
Company baggage wagon	5		5	
Field kitchen	1		1	

Each limber carries 3 belts of 450 cartridges each and each caisson 10 belts of 450 each. The ammunition is the same as that of the infantry rifle, caliber 7.6 millimeters (0.30), model 1891.

In October, 1904, the Russian army had six companies of machine guns, attached to the first, second, third, fourth, fifth, and sixth divisions of the East Siberian Chasseurs.

By imperial order No. 676, November 6/19, 1904, there were created six new companies in the fourteenth, fifteenth, twenty-fifth, thirtieth, fortieth, and forty-first Infantry Divisions. These companies are kept on a war footing.

DISTINCTIVE MARKS OF A MACHINE-GUN COMPANY.

The personnel of the machine-gun companies (imperial order of October 7/20, 1904) wear the uniform of the division or brigade to which they are attached, but with the following differences: The shield on the collar of the tunic and greatcoat is crimson. On the epaulettes and shoulder straps of officers and on the band of the men's forage cap, above the number of the division or the brigade, are placed the letters *Пγλ*, the first letters of the word *Poulemetnaia*—machine-gun company.—*M. I. D., 1021–q.*

ORGANIZATION OF WAGON TRAINS IN THE RUSSIAN ARMY.

The trains are divided into three groups:

First. Regimental trains of the first series, including two-wheeled ammunition carts, the officers' extra horses, the special artillery wagons, the sanitary trains of the troop corps, the camp kitchens, and, whenever possible, the baggage carts of the officers. These wagons follow immediately after the corps to which they belong.

Second. Regimental trains of the second series, including the other ration wagons and the baggage of the troop corps, the reserve horses, the live cattle, and the canteen wagons.

The engineers' technical wagons march, according to circumstances, with one series or the other.

The regimental trains of the second series are united in a special column at the rear of the troops. The ammunition wagons form in this column a special group at the head of all the other wagons.

Third. Divisional trains, including all the other wagons belonging to the troops. Generally this train is a march in rear of the rest.

The artillery, engineers and telegraphic parks, the bridge-building corps, the ambulance and camp hospitals are given

to one or the other series, according to circumstances.—*La France Militaire.*

THE RUSSIAN MOUNTAIN ARTILLERY.

It is known that the Russians were extremely embarrassed at the beginning of the present war by the lack of mountain artillery, from which resulted on many occasions the absolute impossibility of having guns at certain points to oppose the Japanese artillery. They endeavored to repair this lack, and our reader may remember that we announced the organization at first of three and then of six other mountain batteries for the army of Manchuria. Since then nothing in the accounts published by the Russian journals has furnished any information concerning the distribution, organization, and method of employment of these batteries. We find trace of them for the first time in the Novoye Vremya in correspondence relating to engagements with the Russian army of the East, the 9th and 10th of October.

It is said that the commandant of the Third Corps, operating in a very mountainous country and not being able to use his field artillery to support the forward movement of the infantry across the valley when violently assailed by the fire of the Japanese who occupied the opposite summit, had recourse to the Third Mountain Battery, which formed a part of his army corps.

This was the first time, says the correspondent of the Novoye Vremya, who seems to have accompanied the Russian columns, that the Third Mountain Battery was engaged with the enemy. Notwithstanding this, the gunners showed themselves to be efficient and masters of their material.

Their greatest difficulty was in the ammunition resupply.

The incline was more and more steep as the summit was approached. This made it pitiable to see the strong artillery horses, well nourished and in good condition, laden with their burden and heavy harness, struggling to clamber up the incline with their ammunition chests. Every 20 or 30 meters it was necessary to stop them so that they could rest. They breathed hard, opening wide their nostrils, were covered with sweat, and fatigued, trembling in every limb.

The most successful moment of the action of the third bat-

tery was when, noticing a Japanese battery about to take position, they opened on them an accurate fire of all the pieces. In several minutes the Japanese battery was crushed, disappearing by degrees behind an elevation. It did not again appear.

It seems that several deductions may be made from the preceding.

Mountain batteries should be assigned to large units, without doubt to such as constitute the army of the east, operating in a mountainous country. The material was carried by draft horses which do not seem to have been accustomed to their special service, according to the above picture, which the Russian journalist gives of their efforts to reach the battery position, a little highly colored, perhaps, to make it more picturesque.

These few details added to the declaration appearing more and more frequently in the correspondence from the seat of war—that the Russian troops at the beginning of the war were completely ignorant of the practice of mountain warfare and are not yet expert—explain things which at first view seem astonishing. The Japanese, accustomed to maneuver always in the mountains, had marked advantages over the Russians as regards tactical instruction, and their mountain artillery, ballistically inferior to the Russian artillery, but easily transported and operated anywhere, furnished assistance which was wholly lacking to the Russian infantry. Now that the Russians also possess mountain artillery the situation is changed.—*La France Militaire.*

RUSSIAN BUDGET FOR 1905.

We take from the Russki Invalid (No. 12) the general plan of receipts and expenses of the Russian budget for 1905. The principal items are given below:

Receipts.

ORDINARY RECEIPTS.

	Rubles.
1. Direct impost taxes	139, 361, 354
2. Indirect impost taxes	399, 838, 500
3. Custom-house receipts	105, 324, 374
4. Regular taxes	592, 791, 300

	Rubles.
5. Income from Government property and capitals	379, 994, 897
6. Sale of Government estates	561, 004
7. Redemption payments	76, 408, 100
8. Compensation for the expenses of the Government treasury	77, 721, 224
9. Miscellaneous	5, 044, 865
Total ordinary receipts	1, 977, 045, 618

EXTRAORDINARY RECEIPTS.

10. Perpetual deposits in the Government bank	2, 750, 000
Total of extraordinary [?] [a] receipts	1, 979, 795, 618
Available sums of the treasury	14, 838, 638
Grand total of the receipts	1, 994, 634, 256

Expenditures.

ORDINARY EXPENDITURES.

1. Payment of interest on the debts	303, 018, 190
2. Supreme establishments of the Government	3, 418, 035
3. Administration of the holy synod	28, 952, 790
4. Ministry of the imperial court	16, 127, 920
5. Ministry of foreign affairs	5, 704, 035
6. Ministry of war	367, 054, 867
7. Ministry of the navy	116, 637, 050
8. Ministry of the treasury	341, 640, 895
9. Ministry of agriculture and of the Government estates	47, 332, 933
10. Ministry of the interior	108, 603, 833
11. Ministry of public instruction	43, 068, 486
12. Ministry of ways of communication	448, 299, 104
13. Administration of merchant marine and of harbors	12, 346, 668
14. Ministry of justice	49, 854, 629
15. Inspection service [Contrôle de l'Etat]	9, 173, 326
16. Service of the studs	1, 832, 810
	1, 903, 065, 571
17. Caused by increase of prices of provisions and forage	3, 000, 000
18. For urgent and unforeseen demands	10, 000, 000
Total ordinary expenses	1, 916, 065, 571

[a] Apparently a mistake in the original [note of translator].

EXTRAORDINARY EXPENDITURES.

	Rubles.
19. For the Trans-Siberian Railroad	11,780,000
20. For the construction of railroads	60,801,685
21. Subventions to private companies for construction of railroads	5,987,000
Total of extraordinary expenditures	78,568,685
Grand total of expenditures	1,994,634,256

We give now the expenditures of the ministries of war and of the navy. At the side of each item are given the corresponding figures of 1904.

MINISTRY OF WAR.

	1905.	1904.
	Rubles.	*Rubles.*
1. Central administration	3,641,373	3,700,777
2. Local administration	10,170,390	10,696,780
3. Technical services and education	12,197,974	11,975,092
4. Sanitary service	4,772,046	4,438,395
5. Clothing and harness	26,063,295	23,410,424
6. Provisions	49,901,455	49,067,223
7. Forage	21,401,542	21,204,708
8. Pay	77,744,443	76,680,792
9. Recruiting	21,368,152	21,628,789
10. Construction and care of buildings	18,954,100	20,878,429
11. Artillery material	18,683,713	13,506,398
12. Keeping artillery in repair and artillery practice	2,257,700	2,217,007
13. Transportation and travel allowances	14,188,230	13,684,507
14. Mustering in of the contingent	2,191,115	1,491,395
15. Training of the reserves	2,778,067	2,849,942
16. Administration of Turkestan	1,415,725	1,456,278
17. Gendarmerie	5,536,718	5,271,188
18. Rewards and allowances	3,962,451	3,986,242
19. Expenses in connection with gratuity funds	5,797,162	5,715,410
20. Extraordinary expenses	887,757	890,757
21. Kwantung Province	9,709,525	9,214,900
22. Rearmament	23,062,601	25,357,873
23. Miscellaneous	3,083,410	2,913,058
24. Reserve appropriation	17,668,953	19,926,728
25. Appropriation for the needs of the following fiscal year	8,595,000	8,595,000
Total	367,054,867	360,758,092

MINISTRY OF THE NAVY.

1. Central administration and administration of ports	2,602,963	2,604,753
2. Education	1,318,431	1,185,205
3. Sanitary service	1,550,767	1,486,190
4. Pay	7,228,120	7,224,011
5. Subsistence	1,834,000	1,665,296
6. Clothing	3,621,002	3,256,654
7. Navigation	22,920,000	21,470,643
8. Hydrographic service	1,142,959	1,096,045
9. Naval artillery and mines	15,165,246	12,032,274
10. New constructions and care of them	39,069,154	38,743,446
11. Shops and admiralties	6,430,994	5,344,094
12. Recruiting; care of buildings	5,089,984	4,889,050
13. Travel allowances	950,000	950,000
14. Rewards and allowances	636,154	617,444
15. Miscellaneous	2,126,262	2,725,209
16. Port improvements	4,515,835	6,807,676
17. Appropriations for the needs for the following fiscal year	435,179	381,732
Total	116,637,050	112,461,722

NOTE.—The value of the ruble is 51.5 cents.

GENERAL KUROPATKIN'S AVAILABLE TROOPS.

Concerning the fighting forces at the disposal of General Kuropatkin there have been made recently statements which were partly arbitrary, resting upon casual assumptions, partly such as did not include considerable bodies of troops or did not give their budget strength correctly. For the following calculations official Russian statements are exclusively the basis, as they are also for the budget strength. They can, therefore, deviate but little from the truth, whereby it is assumed that the losses arising from fighting and sickness have in the meanwhile been made good. The time of the calculation was the end of January of this year (1905), when the reenforcements last dispatched—three rifle brigades and the Sixteenth Corps—must have reached the war theater. In the fighting strength is included exclusively the fighting forces, viz, the number of rifles and sabers; in the total strength all men and horses assembled in the war theater.

Fighting strength.

INFANTRY.

	Divisions.
Five European Army Corps	10
European infantry divisions 54, 55, 61, 71, 72, formerly reserve brigades	5
Siberian infantry divisions	3
East Siberian sharpshooter divisions	7
European sharpshooter divisions, formerly brigades 1, 2, and 5	3
Total	28
Of these there are—	Rifles.
18 infantry divisions with 14,000 rifles	252,000
10 sharpshooter divisions with 7,000 rifles	70,000
Further:	
12 sapper battalions with 908 rifles, in round numbers	10,900
2 West Siberian sharpshooter battalions with 907 rifles, in round numbers	1,800
Total	334,700

CAVALRY (COSSACKS).

	Regiments.
Tenth Cavalry Division (3 dragoon and the First Orenburger Cossack Regiment)	4
Fourth Don Cossack Division	4
Sa-Baikal Division	4

	Regiments.
Siberian Cossack Division	4
Orenburger Cossack Division	4
First and Second Independent Cavalry Brigade (dragoons)	4
Ural Cavalry Brigade (1 dragoon regiment)	3
Sa-Baikal Cossack Division	2
Caucasia Cavalry Brigade	2
The infantry regiments assigned:	
Third, Sixth, Ninth Siberian Cossack regiments, Fourth and Fifth Ural Cossack regiments, 1 Orenburger Cossack regiment, First Argunsky, Third Verkhniudinsk and Amur Cossack regiments—3 Cossack divisions with (always 2 Sotnia)	10
Total	41

	Sabers.
32 Cossack regiments, including officers, noncommissioned officers, musicians	29,248
9 dragoon regiments	7,544
Total	36,792

ARTILLERY.

	Guns.
10 European and 3 Siberian infantry divisions with 64 guns	832
5 infantry divisions (formerly reserve brigade) with 48 guns	240
3 European and 7 East Siberian sharpshooter divisions with 24 guns	240
8 mounted batteries with 6 guns	48
2 European and 1 Siberian mortar regiment with 24 guns	72
12 East Siberian mountain batteries with 6 guns	72
Total	1,504

Number of artillerymen, 35,340.

Total fighting strength:	Men.
Infantry	334,700
Cavalry	36,792
Artillery	35,340
Total (1,504 guns)	406,832

Frontier guards, railway and fortification troops, as well as landsturm, are not included, as they can find no place in the coming contests.

If one includes the above-mentioned troops which are not included, as also the noncombatants, the subsistence strength at the end of January amounted to 700,000 men, 180,000 horses.

It may well be assumed that Kuropatkin, at the head of

over 400,000 men and 1,500 guns, will attack. Different points indicate it.

The three armies provisionally commanded—Linevitch, Grippenberg, and Kaulbars—must be fully complete by the end of January, for we can not assume that more than 400,000 men can be utilized in them. Twenty-eight divisions, or 14 army corps, are thus ready. Two armies of 5 and one of 4 army corps are the highest possible strength for the immediate conduct of a single leader.

From the contemplated reenforcements a fourth army may be formed, upon which subject details are wanting at the present time.—*The Internationale Revue, February, 1905.*

NEW EXERCISE REGULATIONS FOR THE RUSSIAN ARTILLERY.

As in many other branches of its preparation, the Russian army has let itself be taken by surprise by war also with regard to its field artillery. And so its first troops have entered the field with material not built for rapid fire and with antiquated employment instructions. Only now are the new army corps getting new batteries, and the necessary instructions have only recently been imparted.

With regard to the material the points to be noted are that the projectile is in one piece—that is, the shell is joined to the case containing the powder; that the obturator is such as to render inadvisable keeping the piece loaded, so that it has been ordered that it must never be loaded until ready for firing; that, on the other hand, the cartridge already loaded can be extracted without danger, and, in fact, this is done when the graduation of the fuse is to be changed; that the piece has two lines of aiming, the right being generally used by the gunner, who is stationed at the aiming crank, to give the piece the first direction.

The mounted battery is composed of 8 pieces, 16 caissons, a reserve gun carriage, and the train (which includes a wagon for tools, a portable kitchen, and an ambulance wagon); 8 of the caissons are with the pieces and the rest in reserve. The horse battery is instead composed of 6 pieces and 12 caissons.

The fundamental principle—copied from the French—is

for both mounted and horse batteries that piece and caisson constitute an absolutely undividable unit, but the formation for fire is not the same as in the French artillery.

The formations are two. Either the body of the caisson is placed 8 or 12 lengths from the trail of the carriage and then the limbers of the pieces and of the caissons are placed under cover in the neighborhood, or the limber of the piece is placed 8 lengths from the trail, with the horses headed to the rear, and then the caisson is kept in advance of the limber, with the horses also headed to the rear.

The space between the pieces is, as a rule, 24 paces, but it can be reduced to 8.

The formations of maneuver are reduced to "line," "column," and "lines of column;" the section column has been eliminated. The line can be of "full interval" of 24 paces, of "narrow interval" of 16 paces, and of "close interval" of 8 paces; each piece is followed at 3 paces by its own fighting caisson, while the reserve follows at 24 paces, led by an older noncommissioned officer. In the movements to the rear instead, each caisson precedes its piece at 3 paces.

In column of pieces each fighting caisson follows its own piece, but to shorten the column it may also be arranged for a caisson to keep to the left or to the right 8 paces away from the piece, but on the same line.

The line of columns is used as a mass formation; the 4 sections, in columns of pieces, are at intervals of 16 paces from each other, so that the battery presents a front of 50 paces and a depth of 100, or 150 at the outside.

Evolutions also have been simplified.

Changes of front of batteries and half batteries have been abolished; changes by piece or section can be made in the "line." If the interval is "full," changes of front are normally made by piece and can even be extended to 180°; if the interval is "narrow," changes of 180° per section and 90° per piece can be done; if the interval is "close," only changes of direction can be made. In the changes by piece, pieces and fighting caissons always make them individually; in those by section the two pieces of a section converge and the caissons do likewise individually.

The supply of ammunition is generally carried out as fol-

lows: First, the projectiles of the body of the fighting caisson are used; when these are almost finished the limber of the caisson comes up, its boxes are taken out, the body is attached, and thus the empty caissons retires toward the advance, which are disposed, as usual, with the body near the pieces, while the limbers take shelter near the limbers of the pieces.

Successive supplies are obtained by having recourse to the ammunition of the park (division column).

The battery commander can, however, arrange for the supply to take place in any other way he may deem advisable; he can, therefore, order that certain fighting caissons should be left untouched, or even certain caissons of the reserve, or the limbers of the fighting caissons, or he can also cause the projectile boxes of these limbers to be used.

As regards firing, it is to be noted that during the period of the range finding, fire is divided on all the front to be beaten, unless the commander of a battery should order the fire to be concentrated on a given point of the target.

Lastly, with regard to employment, the new regulations do not contain many rules. As is known the regulations of Russian exercises of the various arms only give formal prescriptions; everything referring to tactical employment is contained, for all arms, in the tactical instructions ("The engagement" of 1900).

Regarding the 1902 exercise regulations, the new ones say:

"Every step taken to take up positions and the taking of the position itself must be done without the enemy's knowledge; and every care should be taken to keep the contact between the battery and the reconnoitering officer in advance of it, between the pieces and the limbers, and the fighting battery and the reserve.

"As far as possible, everything reflecting on the preparation of fire should be done while waiting, before the pieces are brought up to the line of fire.

"The safety of the flanks of the battery is in the hands of the explorers; if there is an escort, the commander of the battery will designate where it is to halt."—*Italia Militare e Marina.*

THE RUSSIAN CASUALTIES.

The following, which appears in the Russki Invalid over the signature of the principal medical officer of the Russian armies in Manchuria, is interesting in relation to the varying accounts which have filtered home from the correspondents in the field in regard to the numbers of the sick and wounded. The returns make no reference to the numbers killed in action, which would of course hardly come within the cognizance of the medical authorities. From the date of the commencement of the war up to the 1st–14th January the following have been evacuated from the field hospitals and sent north—that is to say, to such places as Harbin, Khabarovsk, and Vladivostok: Officers wounded, 1,710; sick, 2,308; men wounded, 53,890; sick, 72,531; making a total sick and wounded of 130,439. During the same period there died in the hospitals: Officers wounded, 45; sick, 62; men wounded, 1,232; sick, 2,668; making a total death roll in hospital of 4,007. There were also 6,474 wounded and 11,248 sick, or a total of 17,722, who were declared unfit for further service. Of the numbers sent back to the interior of Russia there were: Officers wounded, 559; sick, 670; men wounded, 4,121; sick, 4,079; making a total of 9,429 thus sent back to Russia. On the 1st–14th January there still remained in the Russian military hospitals: Officers wounded, 152; sick, 634; men wounded, 4,953; sick, 15,815—altogether, 21,554. By deducting the four last totals from those evacuated to the north from the field hospitals we arrive at the numbers which were enabled to return to the field, viz, 1,896 officers and 75,831 men, making a total of 77,727 officers and men.—*The Broad Arrow.*

ARTILLERY FIRE.

Captain Krasnov, correspondent of the Russki Invalid, many of whose interesting letters our readers have already seen, has just sent to that journal observations made by Colonel Sliousarenko, commanding the first group of the Ninth Brigade of Artillery (Ninth Division of Infantry, Tenth Corps), on the methods of artillery fire and the value of the different kinds of projectiles.

Colonel Sliousarenko is delighted with the methods which

permit of firing while out of sight. It is now hardly necessary, he says, to train cannoneers as pointers. It is sufficient to have intelligent men who are able to read the angle of direction on the goniometer and the angle of fire on the gunner's quadrant. *The whole of the firing is in the hands of the observer.* And it is possible to thus obtain concentrations of fire which are terrible for the enemy.

The colonel cites in support of this statement an incident in the battle of August 30 to the south of Liao-Yang. He at one time descried large Japanese columns and succeeded in finding their range with his batteries, placed out of sight. Under the fire of the Russian shrapnel the Japanese columns recoiled. It was sufficient to increase the elevation by three divisions and fire three more rounds per piece. The Japanese bearing first to the left and then to the right, to follow and cover them with projectiles it was only necessary to modify the angle of the goniometer in the desired direction.

This incident shows once more the value of indirect fire, even on the objectives in movement. It indicates at the same time the importance of the rôle of observers.

Colonel Sliousarenko considers that with the present shrapnel of the Russian artillery, which must be a kind of Robin shell, case shot has become useless.

In support of his dictum he cites an episode which took place on the 14th of October on the Sha-Ho:

"The Japanese infantry was marching toward the batteries. It filled a large gaolian field situated in front of the latter, and the bullets began to whistle over the heads of the gunners. The scouts reported that two Japanese squadrons seemed to be preparing for a charge. No objective was to be seen on which the artillery could fire, owing to the gaolian. I had the guns drawn up to the crest by hand and gave the order to fire—rounds per piece in progressive fire, changing the elevation gradually from the tenth to the twenty-fifth divisions, and altering the positions of the trails horizontally in a sweeping movement. So thoroughly did I clean up the field of gaolian in this way that not a single rifle shot was afterwards heard in that direction."

The area swept by the fire of shrapnel is extensive, and the bullets have a great destroying power. Nevertheless, Colonel Sliousarenko regrets that the Russian field batteries do not dispose of a certain number of explosive shells.

The Japanese greatly fear this kind of projectiles. When the Russian mortars began to fire lyddite shells the Japanese quickly evacuated the bombarded trenches and villages.

In this connection we recall the fact that, to judge from all the accounts of battles in which mention is made of the Japanese artillery fire, the latter would appear to employ shrapnel and shell alternately, whether against infantry or artillery in position, trenches, or localities.

It seems, moreover, according to the Russian accounts, that the action of explosive shell is not overpowerful. Its effect on troops sheltered in a trench is practically nil, and, outside a very small radius, its negligible explosions cause but slight wounds. Although the Japanese have employed it largely against artillery in position, we do not learn from any of the Russian accounts that the Russian guns were dismounted by accurate fire with explosive shell.—*M. I. D. 1890.*

A BATTERY OF ARTILLERY AT THE BATTLE OF DATCHICHAO,[a] JULY 11–24, 1904.

The Second Battery of the Ninth Brigade of East Siberian Artillery, commanded by Lieutenant-Colonel Pachtchenko, sustained a struggle of 15 hours against 6 Japanese batteries. Thanks to its concealed position and the use of indirect fire, it was able to hold its own during all this time against the enemy's artillery and even to inflict on it serious losses.

The battle commenced at 5 o'clock in the morning, and the battery in question took its position about half-past 6. At 10 o'clock it began firing on the Japanese batteries, which were stationed on the slope of some hills at a considerable distance away.

[a] Datchichao is the station on the Harbin-Port Arthur Railroad where the line branches to Peking by Kin-tcheou, Chan-hai-kouan, and Tien-tsin.

Until evening the Japanese were unable to locate the Pachtchenko battery, and it was not until almost 5 o'clock that it began to be struck by the enemy's projectiles, which were, in fact, intended for another Russian battery maneuvering to support it. This maneuvering, however, attracted the attention of the enemy, who at once began to shower the battery with shrapnel. The fight ended at 11 o'clock at night. The battery had fired 4,178 projectiles, 522 shots per piece for the whole day and 35 shots per hour for each piece. It lost only 2 men and 6 horses killed, while 38 men and 3 horses were wounded.—*From the Rousskii Invalid No. 203, 1904.*

THE ARTILLERY COMBAT AT DACHITCHAO.

We have already called the attention of our readers to certain peculiarities of the artillery combat which occurred at Dachitchao, July 24, and which is of interest because on that date for the first time the Japanese artillery in the course of a struggle of 15 hours obtained no advantage over the Russian artillery. We refer to it to-day, taking advantage of the account of this battle by Lieutenant-Colonel Pachtchenko, who participated in it—an account which appeared under his signature in the Viestnik Mandschourskoi Armii, a journal of the Manchurian army published under the direction of the general staff of General Kuropatkin. This account has, therefore, all the evidences of authenticity. We will give a résumé of this article, citing verbatim the principal passages.

* * * * *

At the beginning of hostilities mountain warfare was imperfectly known to us, said Lieutenant-Colonel Pachtchenko, and this embarrassed us greatly, especially as regards the employment of the artillery. On this account and also because of our great numerical inferiority we were subjected to checks, particularly as far as the artillery was concerned. Many of the Russian batteries were equipped with entirely new rapid-fire guns with whose valuable qualities in facilitating the regulation of the fire the officers were imperfectly acquainted.

Our dislike for fire executed from sheltered positions, the defective employment and lack of proper management of the

fire of the artillery were the sole causes of our first repulse and the losses of guns which occurred in the encounters at the beginning of the war with the Japanese. A superficial knowledge of our artillery leads many writers to a hasty conclusion after the results of the first engagements, that the Japanese guns possessed qualities essentially superior to ours. But the results which have been obtained since the battle of Vafangoou show that the Japanese themselves were sensible how misplaced was the confidence in the superiority of the Japanese artillery.

For the first time, at Dachitchao, the Russian artillery was able to select and occupy only at the last moment their battery positions. On the other hand, in all the preceding engagements which occurred in positions prepared long in advance, the artillery occupied battery positions where the shelter had been prepared long beforehand, thus giving to the Chinese spies opportunity to signal to the Japanese before the struggle the positions of the Russian artillery, and in consequence opportunity to the latter to direct their fire with precision, very quickly causing the demolition of the Russian batteries, and as it was impossible for these to retire after the fire their consequent loss at the moment of retreat. At Dachitchao, on the contrary, while the disposition of the batteries was well known beforehand, care was taken not to erect the breastworks protecting the pieces until the last moment.

It was at Dachitchao, on the 24th of July, that we displayed for the first time all the strength of our field guns. This engagement showed to all who doubted the technical and ballistic qualities of our guns that it was only necessary to be acquainted with this ingenious and complicated machine in order to dispel all fear of the numerical superiority of artillery, however great that might be, which the Japanese might have in certain cases. On the 24th of July the Japanese massed their artillery (13 batteries against our right flank, opposite the artillery of the First Siberian Corps).

Until evening, when another joined us, we had only four batteries. In reality only three batteries took part in the artillery combat, because the terrain did not permit us to concentrate the fire of all our batteries on certain parts of the

position. Hence there were, in effect, only 24 of our pieces engaged against 78 Japanese guns distributed over a front of 6 versts. Two batteries (the Second and Third) of the Ninth Brigade of the Eastern Siberian Artillery, on which the most violent fire was directed, were placed behind an elevation in the neighborhood of the village of Iounantoun, about 500 meters from the summit and about 100 meters from the foot of our side of the incline. As the batteries were situated about 500 meters behind an elevation 24 meters in altitude they were able to cover the approaches up to a distance of 2,200 meters.

* * * * *

During the night the artillerists prepared the cover for their pieces, these being placed at intervals of about thirty paces.

It should be remarked as regards this subject that many of the artillerists did not allow intervals of more than 20 paces between their pieces, the normal interval being only 12 paces. But according to numerous measurements made by means of the goniometer of the intervals between the Japanese pieces I was convinced that this interval was not, as a general rule, less than 30 paces, from which I concluded that the Japanese knew, perfectly the extent of the zone covered by our shrapnel (this zone being 16 meters at the utmost).

The morning of the 24th of July, at the break of day, the Japanese opened fire with two batteries. From the first it was evident that their fire was directed at the 12 old positions of the pieces on the summit, which was 500 meters in front of the position really occupied. The fire was begun methodically with percussion shell. The first round hit the middle of the enemy's side of the slope, the next ones the summit itself. Almost at the same time a third one of the enemy's batteries opened fire. These three batteries were outside of the effective range of our shrapnel at the extreme possible range of fire. They fired with great precision, and were wholly without cover, two on the summit to the south of the village of Datchapou and the third opposite our left flank—that is to say, opposite the First Brigade of the Eastern Siberian Artillery, near Tsiantsiatoun.

We received very shortly an order to engage with them, but less than half an hour later new hostile batteries ap-

peared all along the front, as follows: Two on the eastern outskirts of Datchapou, 2 on the summit to the west of the village, 3 others between that elevation and Sandsiatsi, 1 near to Tchansitoun, 1 near to Insiatoun * * *. These 12 batteries participated in the struggle against our right flank—that is to say, against our Second and Third batteries of the Ninth Brigade of Eastern Siberian Artillery. It was difficult to observe when these batteries arrived and took their position, but in two hours they had all concentrated their fire on our positions, and the imminent fire of their shell damaged our infantry intrenchments established on the summit of the hill and on their side of the hill slope.

Here are the details which Lieutenant-Colonel Pachtchenko gives concerning the trenches. It is necessary to distinguish between the Tranchees de combat, occupied only at the moment of fire, and the Tranchees d'attente, covered and protected behind the summit, communicating with the first by means of a passageway itself partly covered. Then he returns to the methods of artillery fire of the enemy.

The Japanese were evidently convinced that our artillery occupied the 12 emplacements prepared on the summit, for they concentrated a most intense artillery fire, first of high explosive shell and then of shrapnel, on the cover itself, then on a zone 200 meters in the rear—that is to say, that the terrain fired upon by them stopped 300 meters short of our guns.

Perceiving that their fire had not the least influence upon the intensity of our fire, they commenced to fire upon the entire slope occupied by us, turning their fire to the right and the left of the zone upon which they first fired, but here again they did not depart from their first method; they did not go beyond a depth of 200 meters and did not find our batteries.

Exasperated by their failure, they raked our whole hillside with high-explosive shell, some of them falling 50 or 60 meters in front of our batteries and some of them on the batteries themselves, but without doing damage.

The accurate fire of the Japanese destroyed the two villages of Iounantoun, as they aimed to fire upon the terrain back of our batteries.

Toward 3 o'clock in the afternoon the Fourth Battery of

the First Brigade was sent to the right of our sector. Its arrival was noticed by the Japanese, who opened upon it shrapnel fire with three or four batteries. This new battery was shielded by an elevation of insufficient height. The flash of their shots was plainly visible to the Japanese from the heights to the north of Datchapou, where they had established a post of observation (outside of the range of our artillery).

The Japanese attach great importance to the positions occupied by the observers and officers who direct the artillery fire. They often select special batteries to fire upon groups of officers, and especially upon those who direct the fire of our batteries, choosing positions for their observers outside the zone of fire, far behind or to the side of their batteries.

We may add to this account that the reports of other eye-witnesses frequently show us that the Russian and Japanese often direct their fire from a distance by telephone, or by means of signals, which confirms the account of Colonel Pachtcheko.

The new Russian battery (Fourth, of the First Brigade) had scarcely opened fire when the Japanese shrapnel began to fall on the hill and in rear of it, and we began to have wounded men in our two batteries. Happily the Japanese did not always know our exact position, which, besides, they found at the extreme limit of the effective range of their shrapnel, and it was impossible for them to move their batteries nearer to us, of which 7 only, on account of the precision of our fire, could again fire on us. Twice they essayed to change the position of the batteries placed to the west of Sandsiatsi, their limbers emerging from behind the wood in the neighborhood of this village, and twice they were caught by our fire. The horses ran away, and the limbers disappeared far in the rear. These two batteries of the Japanese were unfitted for action, and it was reported that they were destroyed.

The other Japanese batteries did not attempt to advance. Toward 5 o'clock in the evening the Japanese succeeded in changing the positions of one of their batteries and in installing it near the village of Tchansitoun on the flank of our batteries and at a distance of 4 versts (4,200 meters). But at that moment one of the Cossack horse batteries occu-

pied shelter to the west of Tiansiatoun, on the embankment of the railway, and drew upon themselves the fire of this Japanese battery. As the horse battery was very well masked by the village, the hostile battery could not direct their fire upon the former, and, on the contrary, they themselves suffered serious losses. Toward 8 o'clock in the evening the Japanese, under shelter of the village of Dotchapou and of the neighboring heights, succeeded in advancing another of their batteries, which was placed at Lioubaisa. This battery could not fire for any length of time, as the elevations as well as the adjustment of the fuse was already exactly known, as it was for all of the villages situated within our zone of fire.

Therefore after our first shell the fire of the hostile battery was confused, and very soon this battery ceased its fire. The cannonade ceased throughout the entire line at 9 o'clock in the evening.

After a cannonade of 15 hours the First Siberian Corps had in all 50 men placed hors de combat. This result was due to the judicious employment of our rapid-fire guns. * * * To prove this it is sufficient to recall that the official Japanese report mentions that on our side 100 pieces were in action at Dachitchao.

It was at Dachitchao for the first time that our artillery was employed in a new manner. It was not installed all at once at the outset in the defensive position. Only a part was employed at first intended for a long-distance struggle or reconnaissance combat, so to speak. It is true that in the case of a less numerous artillery it would be necessary to employ the half for this purpose. The Japanese have recourse very generally to this method. We see them placing in action at first only 2 or 3 batteries out of 13. These batteries without shield were placed outside of the effective range of our shrapnel and opened a shrapnel and high-explosive shell fire, which from the start forced us to disclose the positions of our batteries. We were forced to this because we had no other means of estimating the distance than by opening fire.

After the adoption in many of our batteries of the excellent telemeter of Captain Aubry, of the French artillery, this ruse of the Japanese was no longer effective, and our batteries, having the means of estimating the distance, no

longer opened fire on objectives of this sort. Every time that we allowed ourselves to be caught in this trap the Japanese advanced the mass of their batteries, taking ample time for orientation, preparing the concentration of the fire of their batteries distributed over an extensive front, which in consequence was little vulnerable. Then they inflicted serious losses on our batteries with one round, especially as these were distributed according to the old principles of the time when there was no pointing apparatus permitting fire from positions completely defiladed.

The Japanese, accustomed to making lateral observations and aided by the Chinese spies, had no great difficulty in disabling the fire of our artillery. After they had obtained this result, they made a bound 400 meters forward, and sought, by means of their high-explosive shell, to raise a sort of screen between our batteries and their center of resupply, endeavoring to reach our caissons and limbers. At the same time their infantry energetically assumed the offensive. The concentration of our artillery, to which we had recourse in order to facilitate the command, assisted them in obtaining the result desired. That the personnel of the Russian fire was placed hors de combat was sufficient to prevent them from removing the pieces in case of a check.

The picture is entirely changed if, disregarding the reconnaissance batteries of the adversary, occupying defiladed positions, and having prepared in advance all the elements of fire (sights, fuses, etc.), our batteries are content to patiently observe the enemy's position and to wait, before opening fire, for the moment when the hostile batteries take position. Usually the Japanese opened fire very slowly—that is to say, the preparation of the pieces for the first round was slow—which gave us additional opportunity for preparation for the combat. Our silence during the fire of their batteries of reconnaissance disconcerted them from the first, the more so because they had always sought to prepare for the fire beforehand.

In closing this account Lieutenant-Colonel Pachtchenko mentions a very peculiar method of ammunition resupply used by the Japanese firing batteries during the engagement of Dachitchao. In most cases this resupply was made by chains of men, who passed the ammunition by hand from

the masked positions where the caissons were placed to the firing batteries. The cause of this was doubtless the absolute impossibility of taking teams and full caissons under fire to replace the empty ones.

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In another article, soon to appear, we will again refer to the interesting account of Lieutenant-Colonel Pachtchenko, which is a document of inestimable value, having all the characteristics of an official account made by an eyewitness, with the approbation of the commandant, since the Viestnik Mandchourskoi Armii is published under the surveillance and care of the great general staff of Manchuria.—*La France Militaire.*

RUSSIAN NAVAL LOSSES.

First-class battle ships.—Tsarevitch (disarmed at Kai-Chau after action of August 10), *Petropavlovsk* (sunk by a mine off Port Arthur April 13), *Retvizan*, *Pobieda*, *Poltava*, *Peresviet*, *Sevastopol* (all sunk at Port Arthur).

First-class armored cruisers.—Bayan (sunk at Port Arthur), *Rurik* (sunk in action August 14), *Gromoboi*, and *Rossia* (badly damaged in action August 14, lying at Vladivostok).

First-class cruisers.—Varyag (sunk at Chemulpo February 9), *Bogatyr* (at Vladivostok, badly damaged from striking on a rock), *Askold* (disarmed at Shanghai, after action, August 10), *Diana* (disarmed at Saigon, after action, August 10), *Pallada* (sunk at Port Arthur).

Third-class cruisers.—Boyarin (sunk by mine February 14), *Novik* (wrecked after action August 10), *Vsadnik*, *Gaidamak*, *Zabiaca*, *Rasboinik*, and *Djijdjit* (sunk in Port Arthur).

Submarine mine depot ships.—Yenisei (blown up while laying mines), *Amur* (sunk in Port Arthur).

Gunboats.—Koreëtz (destroyed at Chemulpo February 9), *Sivoutch* (destroyed at Niuchwang), *Mandjur* (disarmed at Shanghai), *Otvazhny*, *Grosiashtchy*, and *Gilyak* (destroyed at Port Arthur), *Gremiashtchy* (destroyed by a mine off Dalny).

The number of destroyers which the Russians had at Port

Arthur has never been clearly stated, but the following are believed to have been accounted for, though the accuracy of the list and names of vessels is not guaranteed: *Steregutchi*, *Silny*, *Strashny*, *Siasky*, *Buiny*, *Barakoff*, *Ietirny*, *Sesy*, *Boiroi*, *Storojevsky*, *Raziatchtiy* (sunk in action or at Port Arthur), *Retshitelny* (captured at Chefoo, after battle, August 10), *Burny* (wrecked off Shan-tung, after battle, August 10), *Rastoropny* (blown up at Chefoo), *Grozovoi* (disarmed at Shanghai), *Bezupretshny*, and *Bezstratshny* (disarmed at Kai-Chau, after action, August 10); six allowed to escape at time of surrender of Port Arthur, and detained—the *Boiki* and *Smeli* at Kai-Chau, and the *Skori*, *Vlastny*, *Serditi*, and *Statni* at Chefoo.

The most serious loss sustained by the Japanese was the destruction of the first-class battle ship *Hatsuse* by a mine some 10 miles off the Liao-ti-shang Promontory, on May 15, and the sinking the following night of the fast cruiser *Yoshino*, after collision in a fog with the *Kasuga*. The coast-defense ship *Heiyen* (captured from the Chinese) and the cruisers *Miyako*, *Kaimon*, and *Saiyen* were sunk by striking mines near Dalny. There have been persistent rumors that the first-class battle ship *Yashima* was also, like the *Hatsuse*, sunk in June by striking a mine near Dalny. It should be noted that Togo makes no mention of her as a complete loss, and all that can be said is that the Japanese authorities have never denied or confirmed the rumor. A telegram, however, published in Rome on the 8th instant, from Tokyo, sent by the Italian agency, throws some light on the matter, for it states that the battle ship *Yashima*, which was sunk by a mine, had at last been successfully raised and brought safely into dock, where her repairs were being energetically proceeded with. This would look as if she had been badly damaged by a mine, but had fortunately only sunk in shallow water or had been beached; and that so long as there was a chance of salving her, the Japanese preserved perfect silence on the matter. The fact that, as is clear now, in the battle of August 10 the Russians had 6 battle ships to the Japanese 4 shows the bad handling of the Russian ships in a worse light than ever.—*Journal of the Royal United Service Institution.*

SPAIN.

PEACE STRENGTH OF ARMY.

In order that the Spanish army may be maintained at the peace strength decided upon of 83,000, all the regiments of the regular army will have to reduce their complement from November 1 last. The peace strength of units will consequently be as follows: Infantry—Fifty-eight regiments in the Peninsula to 519 men each; 6 battalions (the First, Fifth, Seventh, and Twelfth Rifles and the Second and Fourth Mountain Battalions) to 436 men each, and the remaining 12 rifle and mountain battalions to 395 men each. Cavalry—Regiments attached to divisions to 474 men each, the Galician Chasseur Regiment to 355 men, the remaining 23 cavalry regiments to 373 men each. Artillery—Three mountain artillery regiments to 480 men, and Mountain Artillery Brigade Division in camp at Gibraltar to 357 men, the First Siege Artillery Regiment to 277 men, the Second to 558 men, the Third to 237 men, the Fifth to 580 men, and the Sixth to 219 men. Engineers—The First Regiment to 525 men, the Second to 580, the Third to 548, the Fourth to 502, the Pontoon Regiment to 379 men, the Telegraph Regiment to 483, the Railway Regiment to 345, and the Artificers Company to 90 men. Administration troops—The First Brigade to 775 and the Second to 461 men. Medical troops—Seven hundred and fifty-seven men.—*United Service Magazine.*

REORGANIZATION OF SPANISH ARMY.

The Spanish war minister has recently been authorized by the Cortes to modify the organization of the army, within the limits of the ordinary budget, on the following broad lines:

(*a*) Reorganization of the war department and the creation of a grand general staff.

(*b*) Reorganization of the supreme council of war and of the navy.

(*c*) Abolition of consultative war junta, whose duties will mostly be transferred to the grand general staff.

(*d*) Creation of a director-general of the stud and of the remount.

(*e*) Creation of inspector-general of military, educational, and industrial establishments.

(*f*) Reorganization of the military educational establishments, and the creation of a military general college.

(*g*) Restoration of army corps, abolished since 1899.

(*h*) Reorganization of the various branches of the service, recruiting, and reserve districts.—*United Service Magazine.*

THE CREATION OF NEW STAFF UNITS IN SPAIN.

A royal order of December 9 (current) creates:

(*a*) *A central staff* (chief general staff) charged with preparation for war and direction of the higher instruction of the army.

At the head of this organization is placed a lieutenant-general who is entitled *chief of the central staff of the army.* He reports to the minister of war.

His associates comprise:

One general of division, subchief; 1 general of brigade; 72 field officers and captains of the staff corps, of different arms and diverse duties. Two flag officers of the navy are attached to the central general staff for matters relating to coast defense.

The issues coming within the prerogatives of the central staff are distributed among: First, a secretaryship divided into two bureaus, one treating of matters relating to the personnel, the other having especially before it the technical study of ways of communication, the instruction of troops, and the inspection of telegraphic service, of aerostation, of field lighting, and railways; second, five sections, namely, (1) organization and mobilization; (2) instruction; (3) material and revictualing; (4) fortifications and military structures; (5) depot of archives (cartographic military institute).

As to their specialties the following establishments, forces,

and departments are placed under the control of the central staff: The war academy, central school of firing, riding school, telegraphist and railway units, balloon park, topographical brigade, committee on investigations and tests of matériel.

The *central committee on military transportation*, provided for by the regulation respecting military transportation by the railroad, is presided over by the subchief of the central staff, and comprises, as military personnel, 1 colonel of staff, 1 lieutenant-colonel of artillery, 1 major of engineers, 1 military subintendant (colonel or lieutenant-colonel, 1 commissary (lieutenant-colonel or major, inspector), and 1 captain of staff, secretary, all belonging to the central staff.

(*b*) *A general inspection of military, educational, and industrial establishments*, the prerogatives of which require: First, the investigation of questions pertaining to the operation of the schools of application of the different arms and of the general military college (establishments to be organized); second, extraordinary inspections of establishments of instruction and establishments of production upon the order of the minister of war; third, the examinations of publications and inventions of native soldiers for the purpose of making a report upon them to the minister of war and recommending the compensations to be awarded to their authors.

This general inspection comprises 1 lieutenant-general, inspector, 4 generals of brigade (1 of each arm), 1 intendant of division (general of brigade), and 1 medical inspector of the second class (general of brigade).

(*c*) *A general direction of horse breeding and remount*, presided over by a lieutenant-general, and composed of two sections, each presided over by a general of brigade.—*Bulletin de la Presse.*

REORGANIZATION OF THE SPANISH ARMY.

In execution of a law of July 17, 1904, several royal orders modify the organization of the army as follows:

(*a*) The Peninsula territory is divided into 7 military districts, in each of which is established 1 army corps, compris-

ing 2 divisions, 1 mixed regiment of sappers and telegraphists, besides: For the First Corps (Madrid), 1 brigade of light infantry consisting of 6 battalions and 1 section of telegraphists, 1 regiment of mounted artillery, 1 division of cavalry consisting of 2 brigades of 2 regiments, and 1 regiment of horse artillery; for the Second Corps (Seville) and the Fourth Corps (Barcelona), 1 brigade of light infantry consisting of 6 battalions and 1 section of telegraphists (the brigade of the Second Corps has, besides, 1 group of 3 mountain batteries), 1 brigade of cavalry consisting of 2 or 3 regiments; for the Sixth Corps (Burgos), 1 brigade of cavalry consisting of 2 regiments; for the Third Corps (Valencia), Fifth Corps (Saragossa), and Seventh Corps (Valladolid), 1 regiment of cavalry.

The 14 divisions are each composed of 2 brigades of infantry (1 division has 3 of them), consisting of 2 regiments, 1 of cavalry and 1 of mounted or mountain artilllery.

As to the various arms in the Peninsula:

First. The infantry forms 58 regiments of the line, consisting of 3 battalions (2 of which are active and 1 a skeleton battalion of the first reserve) of 4 companies; 18 battalions of chasseurs (1 detached at Ceuta), consisting of 4 active companies and 1 depot company; 116 skeleton battalions of the second reserve.

The reserve regiments have been abolished.

Second. The cavalry comprises 1 squadron of the royal escort and 28 regiments; 27 regiments are organized, consisting of 4 active squadrons and 1 depot squadron; 1 regiment comprises 3 active squadrons and 1 skeleton squadron which is mobilized in time of war.

The reserve regiments have been abolished and replaced by 14 district reserve depots.

Third. The 13 field artillery regiments, of which 1 is mounted, maintain an organization in two groups—one of 3 batteries, and the other of 2 batteries—but they permit a sixth depot battery.

The 3 regiments of mountain artillery consist of 4 active batteries and 1 depot battery. The independent group of mountain artillery remains composed of 3 batteries (1 detached at Ceuta).

The regiment of siege artillery includes 1 section of teams, 4 active batteries, and 1 depot battery.

The battalions of fortress artillery are replaced by 7 commands of fortress artillery, comprising altogether 56 batteries.

Lastly, the number of district reserve depots is raised from 8 to 14.

Fourth. The engineer troops are grouped in 7 mixed regiments of sappers and telegraphists, consisting of 6 companies, 5 of sappers and 1 of telegraphists, besides 2 depot companies; 1 regiment of pontoniers of 4 companies, 1 railway battalion of 4 companies, 1 company of garrison telegraphists, 1 company for aerostation and field lighting, 1 topographical brigade, and 1 company of laborers.

The number of district reserve depots is reduced from 8 to 7.

(*b*) The troops assigned for the defense of our North African possessions consist of:

First. At Ceuta, 1 regiment of infantry consisting of 3 battalions of 4 companies (detached from the peninsula), 1 mountain battery, 13 fortress batteries, 1 company of sappers and miners, besides the *volunteer militia*, consisting of 1 company of Moorish fusiliers, 1 squadron of chasseurs, and 1 company of marine infantry.

Second. At Melilla, 1 regiment of infantry, consisting of 3 battalions of 4 companies, 1 punishment company, 1 squadron of chasseurs, 1 mixed group of 2 batteries (1 mounted and 1 mountain), 6 fortress batteries, 1 company of sappers and miners, besides 1 company of marine infantry.

(*c*) The Balearics and Canaries have:

First. Balearics—Two regiments of infantry, consisting of 3 battalions of 8 companies (2 active and 6 skeleton), 1 regiment of infantry, consisting of 3 battalions of 4 companies, 1 battalion of infantry of 4 companies (1 active and 3 skeleton), 2 squadrons of chasseurs, 2 mixed groups of 2 batteries (1 mounted and 1 mountain), 26 fortress batteries, 2 companies of sappers, and 2 of telegraphists.

Second. Canaries—Three regiments of infantry, consisting of 3 battalions of 8 companies (2 active and 2 skeleton), 1 regiment of infantry, consisting of 3 battalions of 4 com-

panies (1 active and 3 skeleton), 1 battalion of chasseurs of 8 companies (2 active and 6 skeleton), 3 battalions of infantry of 4 companies (1 active and 3 skeleton), 2 squadrons of chasseurs, 2 mountain batteries, 14 fortress batteries, 2 companies of sappers, and 2 of telegraphists.—*Bulletin de la Presse.*

REORGANIZATION OF THE WAR COLLEGE.

In accordance with an order from the King, dated the 31st of May last, this institution of military instruction, which was organized the 3d of February, 1893, has been reorganized.

No officer will be admitted to this school who may not have satisfactorily passed the entrance examination.

Officers to the grade of captain who may wish to take said examination must forward an application in writing to the King.

The entrance examination will be in writing only.

The length of the courses is fixed at three years, each session to begin the 1st of September and to end the 1st of June. A student will be permitted to repeat a particular course of study only in case of sickness.

The classifications at the end of the sessions are no longer recorded by means of numerals, but only by means of the words "Proficient" or "Not proficient." The first remark may be replaced by either of the following words: "Excellent" or "Very good."

Student officers having once received diplomas as eligible for the staff must serve for a period of two years in the different branches of the service, as follows: In the infantry corps if they formerly belonged to the cavalry or in the artillery corps if they formerly belonged to the infantry, also in the different branches of the engineer corps and the staff, and finally to the principal school of instruction in target practice. After this they will return to their respective branches of the service.

They will enjoy the following privileges: They will wear on their collars a star embroidered in gold, placed near the number or insignia of the corps to which they belong.

They will receive extra pay equal in amount to one-fifth

of that received by a captain dismounted until they may have reached the grade of major for those who are first lieutenants at the completion of their studies, and until they have reached the grade of lieutenant-colonel for those who were captains at the completion of their studies.

In making selections for the position of commandante in the military schools and for the position of aides, adjutants, etc., preference will be given to the graduates of the war college.

They may be nominated for the position of foreign military attachés.

Finally, those who are colonels may be placed, according to their age, among the first third of their grade in the army register. They will be promoted by selection, provided that said promotion may be justified by the fact that they also manifest superior intelligence and judgment.

Officers of the staff, says Revue Militaire des Armèes Estrangerès (No. 922), will form, in general, a reserve of the staff corps, and at their request, if they are captains, they will occupy the vacancies which may occur in said staff corps.—*Boletin Militaire.*

SWEDEN.

ARTILLERY FIRE AGAINST SHIELDED GUNS.

During last year experiments were carried out in Sweden to test the results of artillery fire against shielded guns. The shields used were constructed both of hard and of soft steel of varying thicknesses. Shielded timbers representing ammunition wagons were placed near the guns, and two of these contained each 20 percussion shells arranged with the heads alternately to front and rear. The results were as follows: The shrapnel bullets caused severe dents in the 4-millimeter thickness of soft steel. A shell which burst only a very short distance in front of the gun caused the whole shield to bulge, while the shell splinters tore larger holes in the soft than in the hard steel plates, from which the shrapnel bullets rebounded without any noticeable effect. It was observed that the rivets and joints of the hard steel shields seemed much better able to stand the fire than those of the soft steel plates. A 5-millimeter thickness of shield was found to be proof against lead-covered bullets at all ranges; against steel bullets from 500 meters. From the Swedish experiments it would seem that there is not so much fear of exploding even a badly hit ammunition wagon as has generally been imagined. Splinters frequently struck the full timber boxes, and in two of them shells actually exploded; none of the shells in the timbers burst, however, although they were knocked to pieces and the shell casings were torn off and the charges scattered about.—*The Broad Arrow.*

SWITZERLAND.

THE SWISS ARMY.

According to official lists the Swiss Federal army consists, including officers, of 236,431 men of the Élite and Landwehr, thus distributed:

Élite: Infantry, 114,971; cavalry, 5,107; artillery, 17,464; engineers, 5,763; medical services, 1,919; administrative services, 1,414; total, 147,861.

Landwehr: 18,659; first levy, 41,435; second levy, 25,476; men.

The distribution of the whole by the various arms is as follows:

Infantry, 178,522; cavalry, 8,904; artillery, 30,326; engineers, 10,246; medical services, 3,796; administrative services, 2,251; cyclists, 109; total, 7,104 officers, 28,303 noncommissioned officers, and 198,747 men.

In addition the Landsturm consists of 294,388 men; 45,864 are combatants and 242,524 noncombatants.—*United Service Magazine.*

COMPANIES OF MACHINE GUNS.

Every cavalry brigade of the Swiss army is provided with a company of machine guns of 8 pieces.

The company is formed of 4 platoons, each of which is divided in 2 squads and commanded by an officer. To each piece are assigned 2 ammunition-bearing pack horses with about 4,000 shots per piece.

The gunners aim, serve, and fire; the horsemen have charge of the guns on the march and of the safety service.

The noncommissioned officers are chiefs of piece; the corporals see to the horses and to providing ammunition.

The regulations establish three kinds of fire:

1. Volley firing of 20 or 30 shots in a given place. It serves to regulate the fire.

2. Quick fire, which is the normal fire, during which the objective is divided among the various pieces.

3. Single fire, only used in exceptional cases.

The principal has been established that, as a rule, the 2 pieces of each platoon must always be united and that the captain should strive to keep together as much as possible his 4 platoons.

The machine-gun company should, normally, provide for its own safety.—*Esercito Italiano.*

PROJECTS OF MILITARY REFORMS.

From various Swiss papers we gather the following news on the subject of projects of military reforms at present being considered by the Federation:

The fundamental principle of the military service is always that every Swiss citizen must give his personal service according to his ability. The only dispensations granted are those for the railway employees, on the condition, however, that they will attend for three weeks the school of recruits and three revision courses.

All the men obliged to serve are divided into three classes: Élite, from 20 to 33 years, inclusive; Landwehr, from 34 to 40 years, inclusive; Landsturm, from 41 to 50 years, inclusive. Youths under 21 can be called, in case of mobilization, to complete the field troops.

The country would be divided into three territorial districts, corresponding to 6 divisions of infantry. Every division would include 3 brigades of 3 regiments of 3 battalions; these would be of 3 companies and the companies of 3 platoons. The force of the battalion would be of 697 men.

Besides, each division would include 1 cavalry brigade of 2 regiments, a total of 6 squadrons; 1 artillery brigade of 2 regiments, each of 2 groups of 3 batteries; 1 battalion of sappers; 1 artillery park; 1 ambulance; 1 administrative convoy.

The project foresees, however, the existence of two or three army corps general staffs to facilitate the grouping of divisions in time of war and the organization of Alpine troops (alpenjäger) to replace the present "chasseurs" battalions. Each division would have a regiment.

With regard to instruction, a preparatory gymnastic instruction of at least 60 hours is wished for.

To those from 16 to 20 years of age firing instruction, to be given in each commune by cadres for the purpose, is added.

The recruiting infantry schools would be increased from 45 to 60 days. The other arms would get 60 days, except the cavalry, which would get 80.

The revision courses would take place every year instead of every 2 years, and would last 11 days.

All the officers, noncommissioned officers, and the men of the eight youngest classes would be present.

The "landwehr" would also have an annual course of revision of 11 days.

The duration of the courses for the preparatory officers' schools would be increased from 70 to 105 days for all arms. Besides, the infantry lieutenants would follow a course of fire of 15 days; those of cavalry a course of scouting of 15 days; those of artillery a course of fire of 20 days, and a tactical course of 20 days when they are proposed for advancement.

Besides, the lieutenants of the fighting arms would follow a central school course of 40 days, and before being promoted captains would have to command a unit for the duration of a recruit's course.—*Italia Militare e Marina.*

TURKEY.

NEW RIFLE BATTALIONS.

Streffleur's Österreischiche Militärische Zeitschreft announces the formation, in Turkey, of 4 rifle battalions of 4 companies of 3 sections, specially meant to suppress brigandage. Each of these battalions will consist of 26 officers, 800 rank and file, 200 draft awards, 2 machine guns, 2 mountain guns, and 1 heliograph section. The number of rifle battalions in the Turkish army is thus raised from 19 to 23.—*United Service Magazine.*

MISCELLANEOUS.

DIARY OF THE WAR.

Feb. 5. The Japanese minister in St. Petersburg announces rupture of diplomatic relations by order of his Government.

Feb. 8. (Evening.) Japanese squadron under Admiral Uriu, escorting transports, arrives at Chemulpo. Russian gunboat *Korietz* fires the first shot of the war.

(Midnight.) Attack by Japanese squadron under Admiral Togo on Port Arthur. Two Russian battle ships (*Cesarevitch* and *Retvizan*) and one cruiser (*Pallada*) torpedoed.

Feb. 9. (Morning.) Naval action renewed. One Russian battleship (*Poltava*) and three cruisers (*Novik, Aksold, Diana*) injured.

Naval fight off Chemulpo. Japanese destroy Russian cruiser *Variag* and gunboat *Korietz*.

Feb. 10. Formal declaration of war by Japan.

Feb. 11. Russian mine-ship *Yenisei* blown up at Ta-lien-wan.

Feb. 12. China proclaims her neutrality. M. Pavloff, the Russian minister, leaves Seoul.

Feb. 14. Attack on Port Arthur by Japanese destroyers in a snowstorm. Russian cruiser (*Boyarin*) torpedoed.

Feb. 16. Admiral Alexeiff leaves Port Arthur for Harbin. The Japanese cruisers *Nisshin* and *Kasuga* arrive at Yokosuka.

Feb. 17. Admiral Makaroff appointed to supersede Admiral Starck.

100,000,000 yen (£10,000,000) treasury bonds taken up in Tokyo.

Feb. 18. Publication of Russian communiqué recommending patience.

Feb. 20. Cossacks cross the Yalu.

Publication of Russian account of the diplomatic negotiations.

Feb. 21. General Kuropatkin appointed commander in chief of Russian forces in Manchuria by imperial ukase.

Feb. 22. Count Lamsdorff's circular to the powers.

Feb. 23. Agreement between Japan and Korea signed at Seoul.

Feb. 24. (Early morning). Japanese attempt to seal Port Arthur by sinking vessels.

Feb. 25. Renewed naval fighting off Port Arthur.

Feb. 28. Russians and Japanese in touch near Ping-yang.

Feb. 29. The Japanese take possession of Hai-yun-tau, one of the Elliot Islands.

Mar. 2. Publication of Japan's reply to the charges contained in the Russian communiqûes of February 18 and 20.

Mar. 6. Admiral Kamimura bombards Vladivostok.

Mar. 9. Publication of Japan's reply to Count Lamsdorff's circular note of February 22.

Mar. 9–10. Japanese destroyers attack Port Arthur shortly after midnight. Russian destroyer sunk.

Mar. 12. General Kuropatkin leaves St. Petersburg.

Mar. 21–22. Bombardment of Port Arthur. Russian fleet takes up a position at the entrance of the harbor.

Mar. 23. Japanese and Russians in touch at Pak-chen.

Mar. 27. Second attempt to block the entrance to Port Arthur. Four steamers sunk.

General Kuropatkin reaches Harbin.

Apr. 6. Japanese occupy Wiju and Russians retreat across Ya-lu.

Apr. 8–9. Skirmishes on the Ya-lu.

Apr. 12. The *Koryo Maru*, supported by Japanese torpedo vessels, lays mines outside Port Arthur.

Apr. 13. Japanese destroyers cut off and sink a Russian destroyer in the vicinity of Port Arthur.

Japanese cruisers decoy Admiral Makaroff out of Port Arthur. On the return of the Russian squadron the *Petropavlovsk* is sunk by a mine and Admiral Makaroff drowned.

Apr. 14. Japanese fleet appears again off Port Arthur, but Russians remain silent.

Apr. 15. *Kasuga* and *Nisshin* bombard Port Arthur by high-angle fire from Pigeon Bay.

Apr. 23. Japanese advanced guard crosses the Ya-lu.

Apr. 25. Vladivostok squadron appears suddenly off Gen-san and sinks Japanese merchant steamer *Goyo Maru*.

Apr. 26. Japanese transport *Kinshiu Maru* sunk by two Russian torpedo boats.

Apr. 27. Japanese attempt to block the channel at Port Arthur. Fighting on the Ya-lu begins.

Apr. 29–30 and May 1. Battle of the Ya-lu. The first Japanese army, under Kuroki, forces the crossing of the Ya-lu near Wi-ju, defeats Russians under Sassulitch with great slaughter, and captures 28 guns. Kiu-lien-cheng captured by the Japanese.

May 1. Japanese renew their attempts to block Port Arthur by means of fire ships.

May 3. Port Arthur blocked for battle ships and cruisers.

May 4. (Morning.) Second Japanese army sails from Chinampo.

(Evening.) Admiral Hosoya with first fleet of transports appears off Pi-tsze-wo in Liau-tung Peninsula.

May 5. Admiral Hosoya lands naval brigade and a division at Pi-tsze-wo.

May 6. Japanese occupy Feng-hwang-cheng.

May 8. General Oku cuts the railway at Pu-lan-tien.

May 10. Cossacks unsuccessfully attack An-ju.

May 12. Japanese fleet, under Admiral Kataoka, bombards Ta-lien-wan. Japanese torpedo boat sunk by a mine in Kerr Bay.

Japanese 6 per cent sterling loan of £10,000,000 issued in London and New York at 93½.

May 13. Russian 5 per cent external loan of 800,000,000 francs (£32,000,000) issued by Banque de Paris group.

May 14. Japanese dispatch boat sunk by a mine in Kerr Bay. Japanese occupy Pu-lan-tien.

May 15. Japanese cruiser *Yoshimo* sunk in collision with cruiser *Kasuga*. Japanese battle ship *Hatsuse* sunk by a mine near Port Arthur.

May 16. Japanese second army moves on Kin-chau.

May 19. Japanese third army lands at Ta-ku-shan.

May 20. Russian cruiser *Bogatyr* runs on the rocks near Vladivostok.

May 24. Japanese bombarded Port Arthur.

May 27. Battle of Kin-chau: Japanese storm Nanshan and capture 78 guns. Admiral Togo establishes blockade of south end of Liau-tung Peninsula.

May 30. Japanese occupy Dalny; Stackelberg's Corps dispatched to relieve Port Arthur, in touch with Japanese at Wa-fang-kau.

June 4. Russian gunboat sunk by a mine near Port Arthur.

June 7. Kuroki begins his advance.

June 8. Japanese occupy Siu-yen and Saimatse.

June 11. Japanese blockade Niu-chwang.

June 14. The Russian destroyer flotilla makes a sortie from Port Arthur, but is driven back by Togo.

June 14–15. Battle of Telissu. Japanese storm Russian position at Wa-fang-kau. Russians retire on Kai-ping, with a loss of 7,000 men and 16 guns.

June 15. Vladivostok squadron at sea; sinks two Japanese transports, *Hitachi Maru* and the *Sado Maru*.

June 16. Vladivostok squadron, under Admiral Skrydioff, captures the *Allenton*, bound from Muroran to Singapore.

June 20. General Kuropatkin arrives at Kai-ping and inspects General Stackelberg's troops.

June 21. Oku's army occupies Hsiung-yao-cheng, 30 miles north of Telissu.

June 23. The Russian fleet makes a sortie from Port Arthur, but is driven back again, with loss, by Togo. Kuropatkin takes command of the Russian army in person.

June 26. The two armies face to face, Russians holding the line Kai-ping, Ta-shih-chiao, Liau-yang. Japanese south of Kai-ping, Lien-shan-kuan, Saimatse. Japanese approach Port Arthur from the land side, and capture Hsitaushan and Kenshan.

June 27. Japanese capture three important passes giving access to the Liau Valley, Fen-shui-ling, Mo-tien-ling, and Ta-ling. Japanese sink two ships in Port Arthur by a torpedo attack.

June 28. Japanese Sixth Division lands at Kerr Bay.

June 30. Vladivostok squadron bombards Gen-san.

July 1. Vladivostok squadron eludes Admiral Kamimura near Tsu Shima.

July 3, 4, 5. Severe fighting at Port Arthur by land and sea. General Stössel retreats from the first of the outlying lines of defense. Japanese cruiser *Kaimon* sunk by a mine in a fog off Ta-lien-wan.

July 4–6. The *Peterburg* and *Smolensk*, cruisers of the volunteer fleet, pass the Bosporus under the commercial flag.

July 6. Marshal Oyama, commander in chief, leaves Tokyo for the front.

July 9. Second Japanese army, under General Oku, occupies Kai-ping.

July 11. British steamships *Menelaus* and *Crewe Hall* stopped south of Jiddah by volunteer cruiser *Peterburg*.

July 13. British steamship *Malacca* stopped by *Peterburg* in Red Sea and taken back to Suez.

July 15. Steamship *Prinz Heinrich* stopped by *Smolensk* and mails seized.

July 16. British steamship *Hipsang* sunk by Russian destroyer in Gulf of Pechili.

July 17. Ineffectual attack by General Count Keller on the Mo-tien-ling position.

July 19. Steamship *Scandia* stopped in Red Sea and taken back to Suez.

July 20. Vladivostok squadron passes Tsugaru Straits into the Pacific, pursued by Japanese torpedo flotilla. British ambassador in St. Petersburg hands a protest against the seizure of the *Malacca*, and a request for her immediate release.

July 24. British steamship *Knight Commander* sunk by Vladivostok squadron off Idzu. British steamship *Formosa* overhauled in the Red Sea and taken back to Suez. Japanese torpedo three Russian destroyers outside Port Arthur.

July 25. General Oku, after severe fighting, drives the Russians back from their intrenched positions on Ta-shih-chiao. Japanese occupy Niu-chwang.

July 26–30. Severe fighting at Port Arthur. Japanese capture Wolf Hill. General Stössel retreats from the second of the outlying lines of defense and falls back toward Port Arthur.

July 27. Release of the *Malacca*.

July 28. Assassination of M. de Plehve.

July 31. General Japanese advance. Japanese drive Russians back all along the line on Hai-cheng, Pan-hsi-lu, and Yan-zu-ling. Investment of Port Arthur begun.

Aug. 3. General Oku occupies Hai-cheng and Niu-chwang town. Russians at Port Arthur driven back onto their inner lines.

Aug. 8. Combined land and sea attack on Port Arthur ends in capture of Takushan and Shakushan.

Aug. 10. Sortie of the Port Arthur fleet. Admiral Togo attacks and disperses them, seriously damaging five battle ships. Admiral Vitoft killed. Some Russian vessels take refuge in the neutral ports of Shanghai, Chifu, and Tsing-tau, but the majority are driven back into Port Arthur.

Aug. 11. A Russian destroyer stranded 20 miles east of Wei-hai-wei. Lord Lansdowne makes a statement in the House of Lords with regard to contraband.

Aug. 12. Birth of the Cesarevitch. Japanese board and capture Russian destroyer *Reshitelni* in Chifu Harbor.

Aug. 13. Admiral Rozhdestvensky assumes command of Baltic fleet.

Aug. 14. Admiral Kamimura engages Vladivostok squadron 40 miles northeast of Tsu Shima and sinks cruiser *Rurik*. Japanese bombard Port Arthur.

Aug. 16. Russian fleet attempts another sortie from Port Arthur. Japanese send a flag of truce into Port Arthur advising the removal of noncombatants and the surrender of the fortress. British steamers *Asia* and *Pencalenick* stopped in vicinity of Cape St. Vincent by Russian cruiser *Ural*.

Aug. 17. Russians refuse both Japanese proposals. British and American ambassadors in St. Petersburg protest simultaneously against Russian decision to regard foodstuffs as contraband of war.

Aug. 18. The attack on Port Arthur renewed, Russian gunboat *Otvajni* sunk by a mine off Liau-tie-shan.

Aug. 19. Japanese protest against prolonged stay of *Askold* and *Grosovoi* at Shanghai.

Aug. 19–24. General attack on Port Arthur.

Aug. 20. Japanese cruisers *Chitose* and *Tsushima* drive *Novik* ashore in Korsakovsk Harbor.

174 Meter Hill captured.

25880—No. III—05 M——14

Aug. 21. Steamship *Comedian* stopped by *Smolensk* 80 miles from East London.

Aug. 22. East and West Panlungshan forts captured.

Aug. 23. Russian battle ship *Sevastopol* damaged by a mine in Port Arthur. General Kuroki's left column commences the operations leading up to the battle of Liau-yang.

Aug. 24. The Czar orders the disarmament of *Askold* and *Grosovoi*. Failure of first general attack on Port Arthur.

Aug. 25. Mr. Balfour receives a deputation representing the interests of British shipping.

General Japanese advance on Liau-yang begun.

Aug 25, 26. Kuroki's center column carries Russian position at Kung-chang-ling. Second and third armies attack An-shan-chan.

Aug. 27, 31. Renewed attacks on Port Arthur.

Aug. 28. Russians, having lost all advanced positions, are driven back upon Liau-yang. Kuroki gains right bank of the Tang-ho and effects junction with second and third armies.

Aug. 29–30. Japanese cannonade Russian positions and make infantry attacks, but make no material impression on the defense.

Aug. 31. Second and third armies resume their attack and make progress in the direction of Hsin-li-tun and Shou-shan.

Sept. 1. Russians driven out of their works at these points, and Russian right and center fall back toward river line. First army carries Manjayama Hili.

Sept. 2–3. Second and third armies continue their attacks.

Sept. 3. Kuropatkin orders a general retreat.

Sept. 4. Russian rear guard after delaying Japanese for two days finally evacuates Liau-yang.

The Japanese enter Liau-yang at 3 a. m.

Sept. 4–5. Russian army in retreat fights rear guard actions with Kuroki, who occupies Yen-tai coal mines.

Sept. 6. In vicinity of Zanzibar, British cruiser *Forte* conveys to the *Peterburg* and *Smolensk* the Tsar's orders to desist from interfering with neutral shipping.

Sept. 7. Kuropatkin arrives at Mukden.

Sept. 13. Vladivostok prize court decides to release British steamer *Calchas*, but confiscates its cargo of flour and cotton.

Sept. 16. Russia recognizes distinction between absolute and conditional contraband.

Sept. 18. The Japanese armored gunboat *Hei-yen* strikes a mine and sinks.

Sept. 19–20. Capture of Fort Kuropatkin and the Sueiszeying redoubts.

Sept. 20. Capture of Namaokayama.

Sept. 21. Japanese obtain a footing on 203-Metre Hill, but are subsequently obliged to retire.

Sept. 25. Russian imperial rescript appointing General Gripenberg to command second Manchurian army.
Sept. 26. Circum-Baikal Railway opened.
Sept. 29. New military system introduced into Japan making men who have passed into the territorial army eligible for foreign service for 17½ years.
Oct. 2. Publication of Kuropatkin's order of the day, declaring the Manchurian army to be strong enough to begin a forward movement.
Oct. 9. Russians cross Tai-tse and attack the Japanese first army.
Oct. 10–11. Severe fighting at Pen-hsi-hu.
Oct. 12. Heavy fighting all along the line. Russians driven back
13, 14. over the Sha-ho.
Oct. 15. Baltic fleet leaves Libau.
Oct. 16. Japanese capture Hachimakeyama (near Ehrlungshan).
Oct. 17. Baltic fleet anchors off the Danish coast.
Oct. 18. Baltic fleet passes through the Great Belt.
Oct. 20. Baltic fleet proceeds to the North Sea.
Oct. 21, 22. Baltic fleet at midnight fires on Hull fishing fleet.
Oct. 22. The supreme prize court in St. Petersburg releases the *Allanton*.
Oct. 24. Urgent representations addressed by the British to the Russian Government.
Preliminary orders for mutual support and cooperation sent to the Mediterranean, channel, and home fleets.
Oct. 25. The Tsar sends a message to the King expressing his extreme regret.
Oct. 26. Baltic fleet arrives at Vigo.
Japanese seize trenches on the Ehrlungshan glacis.
Oct. 28. Mr. Balfour, at the Southampton meeting of the National Union of Conservative Association, announces that an international commission of inquiry is to be constituted in accordance with the provisions of The Hague convention.
Oct. 29. Four Russian officers left behind at Tangier.
Baltic fleet begins to arrive at Tangier.
Oct. 31. Japanese gain possession of the glacis crests of Ehrlungshan, Sungshushan, and the north fort of East Keekwanshan.
Nov. 2. Sir Charles Hardinge submits the British proposals for the constitution of the commission of inquiry.
Nov. 4. Foreign office statement on contraband.
Nov. 5. Russia accepts the draft proposals of Great Britain, but difficulties are subsequently raised.
Baltic fleet leaves Tangier.
General Linevitch appointed to command first and General Kaulbars appointed to command third Manchurian army.

Nov. 10. Admiral Alexeieff arrives in St. Petersburg.
Admiral Folkersahm's division at Suda Bay.
Nov. 12. Admiral Rozhdestvensky at Dakar till November 16.
Nov. 12. Japanese 6 per cent sterling loan (second series) for £12,000,000 issued in London and New York at 90½.
Nov. 15. Board of trade inquiry opened at Hull.
Nov. 16. Russian destroyer *Raztoropni* blown up by her commander at Chifu.
Nov. 17. Supplementary division of the Baltic fleet leaves Libau.
Nov. 24. Admiral Folkersahm's first division arrives at Port Said.
Nov. 25. Anglo-Russian convention signed in St. Petersburg.
Attention drawn to the voyage of the torpedo boat *Caroline* from the Thames to Libau.
Nov. 26. Confiscation of the *Cheltenham* confirmed in St. Petersburg.
Rozhdestvensky at Gaboon (French Congo).
Nov. 27. Folkersahm's division leaves Suez.
Nov. 28. Letter published from Lord Lansdowne to the chamber of shipping, setting forth the view of the foreign office as to the supply of British coal to the Russian fleet.
Nov. 30. Capture of 203 Metre Hill. Japanese cruiser *Sai Yen* sunk by mine.
Dec. 2. Folkersahm's division passes Perim.
Crews of Russian war ships give trouble at Shanghai.
Dec. 3. Supreme prize court at St. Petersburg reverses decision of Vladivostok tribunal as to *Thea* (sinking of steamer now declared not to be justified) and *Arabia* (cargo of flour now declared not to be contraband).
Guns of Japanese naval brigade open fire on Russian ships in Port Arthur.
Dec. 5. The Russian naval headquarters staff in St. Petersburg admits that cruiser *Aurora* was struck by Russian shells on night of October 21. Folkersahm's division coaling at the Musha Islands.
Dec. 6. Japanese occupy Akasayama.
Rozhdestvensky at Great Fish Bay.
Dec. 11. Rozhdestvensky at Angra Pequena.
Dec. 12, 15. Torpedo attacks on the *Sevastopol.*
Dec. 18. Tungkeekwanshan fort taken.
Dec. 19. Rozhdestvensky passes Cape Town.
Japanese seize the British steamer *Nigretia*, bound for Vladivostok.
Dec. 22. Japanese occupy Hon-san-yang-tan, near Pigeon Bay.
Japanese squadron reported off Singapore.
Commission of inquiry meets in Paris and adjourns to January 9.
Dec. 22–25. Japanese dislodge several Russian outposts at Port Arthur.
Dec. 24. Admiral Togo reduces the blockading squadron.

Dec. 28. Capture of Erhlungshan.

Dec. 31. Capture of Sungshooshan.

1905.

Jan. 1. General Stossel proposes and General Nogi accepts surrender of Port Arthur.

Four Russian destroyers escape to Chifu.

Rozhdestvensky arrives at Ile Sainte Marie, off Madagascar.

Jan. 2. Port Arthur capitulation agreement signed.

Jan. 3. Folkersahm arrives at Passandava Bay, Madagascar.

Jan. 4. Itszshan and other forts delivered to Japanese as guarantee of capitulation.

Jan. 5. *Nigretia* condemned by Japanese courts.

Meeting of Nogi and Stossel.

Official report by General Nogi, reckoning the surrendered garrison at 32,207 prisoners and over 15,000 sick and wounded.

Jan. 6. Prisoners march out of Port Arthur.

Jan. 8. Supplementary division of Baltic fleet leaves Suda Bay.

Jan. 9. International Commission of Inquiry into North Sea incident resumes its sittings.

Jan. 10. Suplementary squadron of Baltic fleet (Admiral Botrovosky) at Port Said.

Jan. 11, 12. General Mishchenko makes a raid to the south, attacks old Niu-chwang and cuts line, but is forced to retire.

Jan. 12. Fifteen million seven hundred and ninety-five thousand pounds of a Russian 4½ per cent loan of 500,000,000 marks (£25,000,000) issued in Berlin. Remainder was to be issued later; believed to be now placed.

General Nogi announces capture of 546 guns and 82,670 rounds of gun ammunition at Port Arthur.

Jan. 13. Baltic fleet at Diego Suarez.

Admiral Botrovosky's squadron leaves Suez.

Russian circular note presented to powers, protesting against alleged infractions of Chinese neutrality.

Jan. 18. Admiral Botrovosky's squadron at Jibuti.

Jan. 19. First public sitting of Commission of Inquiry, in Paris.

Jan. 22. Strike riots in St. Petersburg. Troops fire on populace.

Jan. 25–29. Russians cross the Hun-ho and attack Japanese left wing. Heavy fighting, at the conclusion of which Russians are forced to retire. Japanese losses, 7,000 killed and wounded. Russian losses over 10,000.

Jan. 31. Japanese statement published in reply to Russian circular respecting alleged infractions of Chinese neutrality.

Feb. 3–5. Russians renewed desultory attacks on Japanese left and center.

Feb. 5. Report current in St. Petersburg of General Kuropatkin's recall or resignation.

—*London Times.*

COMPARATIVE INCREASE OF CONTINENTAL ARMIES.

While the budgets of the foreign armies increase sensibly every year from 1893, ours (the Italian) instead diminish gradually to finally reach the consolidated figure of 239,000,000 lira. Elsewhere, as will be seen, peace effectives and organic units increased, while in Italy the system of the smallest force between April and September was established, making any serious and profitable instruction of troops impossible.

Barring the institution of the depots for infantry regiments which took effect in 1897, and the adoption of new field material for the artillery, nothing has been done in Italy for the army.

Austria during 1903–4 increased the infantry by 5 battalions, the wagon train by 16 squadrons, the mountain artillery by 1 battery; 14 divisions of field howitzers were, besides, created in 3 batteries of 6 pieces each (one for each army corps), besides 7 infantry brigade commands and a cavalry division.

Finally, our neighbor beyond Isonzo, though generally considered most parsimonious in military expenses, has lately assigned a credit of 88,000,000 crowns to the building of new field material.

In the same length of time Germany increased its infantry by 87 battalions, its cavalry by 17 squadrons, its field artillery by 80 batteries (66 of which are light howitzer batteries), its fortress artillery by 14 companies, its pioneer corps by 5 companies, its railway corps by 11 companies. It created, besides, 16 quick-firing gun batteries.

In consequence of the institution of these new detachments the force under arms in time of peace at the present day reaches 587,000 men, against the 480,000 of 1893.

France in these last 10 years has formed fourth battalions of 4 companies in 67 regiments of infantry (subdivisional), the number of companies in all the battalions of foot chasseurs being brought from 5 to 6; 10 new battalions of sharpshooters, 3 battalions of engineers, and 5 companies of cyclists have been formed. The formation of a colonial army corps of 3 divisions is also to be noted, as also the assigning of groups of curved-firing artillery to the army and navy corps.

To all this must be added that France, Germany, and Austria have provided in a large measure for the defense of coasts and frontiers. Our naval strongholds could offer but a very weak resistance with their antiquated armament, and our frontiers are but indifferently defended, especially the eastern one.

Besides, our immediate neighbors have the greatest facility for bringing up troops to the frontier, while our railways, from the military point of view, leave much to be desired.—*Italia Militare e Marina.*

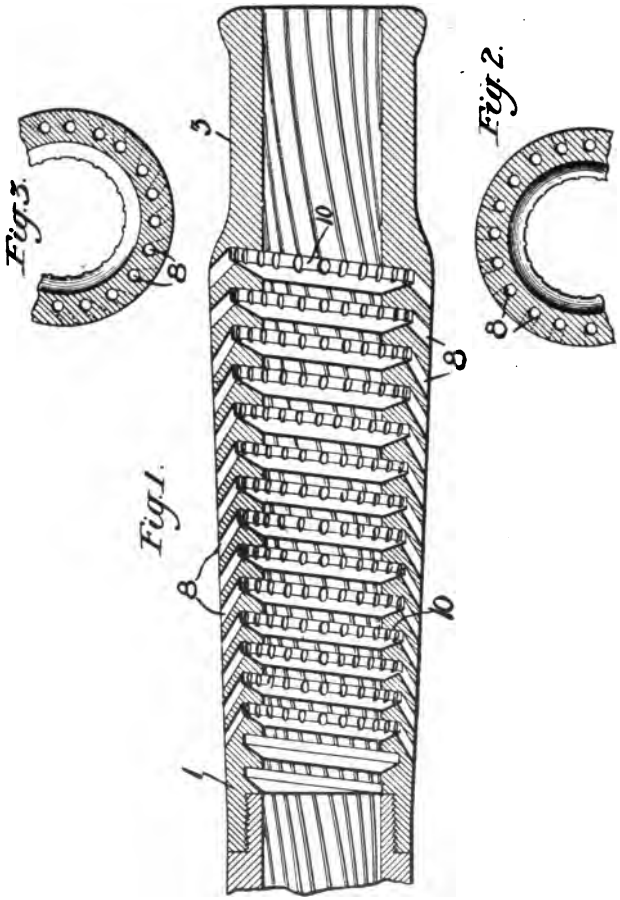
VESSELS LAUNCHED IN 1904.

The Marine Rundschau sums up as follows the number of war ships of various nations launched in 1904 and their tonnage: United States, 17 ships, with a total of 177,350 tons displacement; Great Britain, 16 ships, total, 120,056 tons; Germany, 5 ships, total, 42,400 tons; France, 3 ships, total, 42,290 tons; Italy, 2 ships, total, 25,260 tons; Austria, 3 ships, total, 11,480 tons.—*United Service Gazette.*

RECOIL-CONTROLLING DEVICE FOR GUNS.

A patent has recently been issued to Mr. Samuel N. McLean, of Cleveland, Ohio, for a device for controlling the recoil of all kinds of firearms. The invention relates particularly to a construction of the gun barrel so as to utilize the energy of the powder gases to oppose the recoil and to control their energy for various other purposes. As stated, the invention is claimed to be applicable to all kinds of firearms, including small arms, machine guns, and ordnance. The device, which is shown in figure 1, may be an integral part of the barrel of the gun or may be separate and screwed onto the muzzle. In the form of the device shown in the figure, which is the latest improvement thereon, the interior of the gun barrel near the muzzle is provided with a gradually deepening spiral groove, associated with a series of vents. The whole device is so constructed that the gases shall first impinge upon the front surface of the groove, which surface is practically at right angles to the axis of the bore, and then escape through the vents in an oblique direction to the rear. The vents referred to gradually increase in size in the direction of the muzzle. These

grooves are inclined to planes through the axis of the bore, and in such a direction that the pressure of the gases due to this inclination is opposed to the tendency to rotate caused by the rifling. The recoil is controlled by the pressure of the gases against the forward face of the spiral groove and by the reaction of the gases upon the air in their escape to



the rear through the vents. The effect of the device is also to gradually lessen and very much reduce the blast of the gun, as well as the report of discharge. Figure 2 shows the vents in axial planes, while figure 3 shows the vents in inclined position. The inventor applies the device to an automatic machine gun, a part of the gases escaping through the vent being utilized to operate the mechanism.

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